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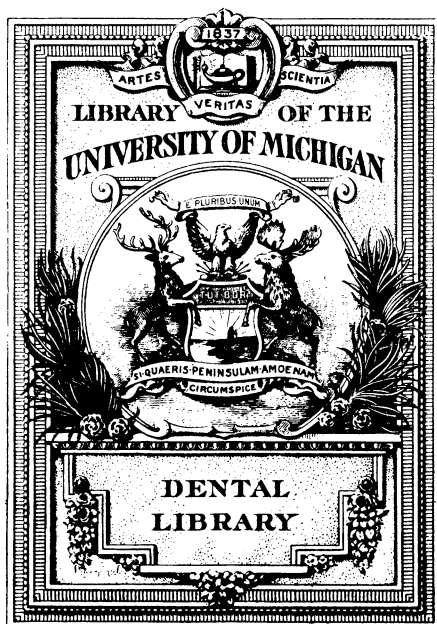
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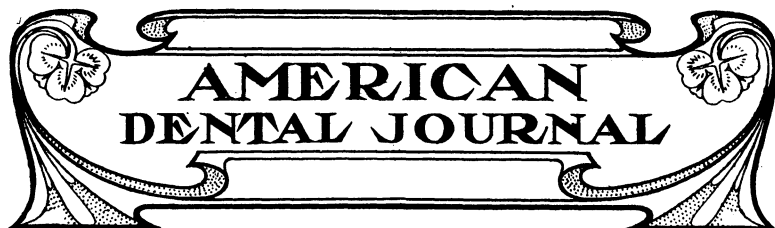
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Commencement Exercises, Steinway Hall, May 4. Class 73

Progressive Course of Practical Instruction

ORTHODONTIA.

BY J. N. McDOWELL, D. D. S., PROFESSOR OF ORTHODONTIA, COLLEGE OF DENTISTRY, UNIVERSITY OF ILLINOIS.

CHAPTER IV.

MODEL MAKING.

Use of Models.—One of the most important considerations in connection with regulating teeth is to secure accurate models of the upper and lower teeth for reference and study. It is like trying to build a house without plans and drawings for one to attempt to regulate teeth without correct models to aid and guide him in his work. Just as soon as pressure is applied with regulating appliances, all the teeth begin to move in correspondence with the force or pressure that is applied and in time the teeth change their position and lose their original identity of appearance. In a few weeks one would be working hopelessly in the dark unless they had models to refer to, in order to note the original position of the teeth. Another advantage of models is in the study of the occlusion of each individual tooth. The conformity of the arch and the position of the teeth, hence are misleading, and irreparable conditions are liable to can be more readily deducted. Models that are poorly made or improperly occluded do not show the true or normal position of the teeth, hence are misleading, and irreparable conditions are liable to be established that may become permanent before the real cause is located.

Never attempt to regulate teeth with only one-half of the occlusion; that is, only a model of the upper or only a model of the lower if the lower is to be worked on. If only the upper model has been secured and the regulating appliance placed on, one would be only working in the dark, for in a short time the correct relations of the arches would be lost; the conformity of the upper with the lower would be changed and the result, naturally, would be a failure of the case, especially if it were a complex malocclusion. Models are made

to show the changes that have been accomplished and to guide one in accomplishing the results; also to aid one in putting on the retainers,

Requirements of Impressions.—In taking impressions it is necessary to take them as nearly accurate as possible. Perfect outline of the teeth, cusps, and the sulcate grooves must show distinctly. The gums around the teeth, and the rugæ of the mouth all have their im-

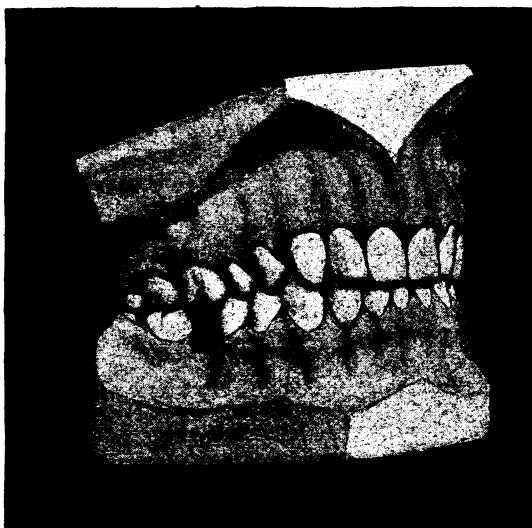


FIG. 1.

portance in model-making and should not be slighted. The impression should be taken high to show all the alveolus, its thickness, its conformity, the outline of the roots of the teeth and the direction they take. (Fig. 1.)

It is necessary to keep the original form of the arch and such conditions as undercuts or depressions in the alveolar process. Teeth that are tipped in or out, over-lapped, and all such irregular conformities, should always be accurately taken.

Material for Impressions.—This cannot be done with modeling compound or wax. While modeling compound or wax may conform

to the teeth or alveoli in the mouth, they are so often distorted and changed in removing as to become useless. (B Fig. 2, shows models of this kind.) Plaster of paris is the only material to use in taking impressions. Owing to its consistency, softness, etc., in preparation, when placed in the mouth it adapts itself perfectly to all



FIG. II.

parts, the depressions, sulcate grooves and interproximate spaces, and all are properly taken. The plaster is allowed to thoroughly harden and it must not be removed while soft; for in doing so the plaster is compressed, distorted and crumbled up without a distinct break, and the impression loses its original identity.

As stated before, plaster of paris is the best material we have for taking impressions of the mouth, because with it we are able to secure more perfect and accurate impressions. Modeling compound, wax and all other impression materials that distort and change in removing from the mouth should be avoided. And very serious

mistakes are often made in taking impressions with plaster of paris that make the model as useless as that taken with modeling compound. A, Fig. 2, is a poor cast taken in plaster. This is due to several reasons; wrong kind of tray, inserting the tray into the mouth wrong and not facing the tray with plaster, high enough, etc. Fig. 1 shows a model that is properly taken. It is high enough at all parts to show all the alveolar process and the outline of the roots and the direction they take.

Trays.—In taking impressions for regulating it is necessary to show all the teeth, the position, the alveoli, etc., as stated above. This it is impossible to do with the ordinary impression tray, as it is not deep enough. It is necessary to have trays that have a high rim as far back as the heel of the tray. Fig. 3.

Taking Impressions.—After trying the trays in the mouth, take the one that fits the best, bending the tray to conform to the mouth, if necessary. Sometimes the arches are narrow and contracted, but the trays are made of pliable metal and can be easily bent to any shape. It is not necessary to use solution of any kind to aid in separating the tray from the plaster, if the tray is kept as it should be, neat, clean and nicely polished. If they are dented, scraped, pounded or distorted their usefulness is gone, as plaster will adhere to the rough surface and interfere with the removal of the tray from the impression. It is best to procure new ones when they become dented, scraped or deformed.

Use salt and even warm water to hasten the setting of the plaster. Fill the tray with plaster that is moderately thin in consistency, filling up the rim on either side and piling the plaster high in front and over on the handle. There should be no plaster from the center of the palatine portion back to the distal edge. This will keep from gagging the patient and no plaster will flow backward at this point. Place the tray in the mouth and before forcing fully into place, raise the lip and with the fingers force all the surplus plaster on the handle of the tray up under the lip. Then force the tray into position, pressing the heel of the tray up first and then the front. Do the same with the lower, excepting that just before forcing the tray into position, have the patient raise the tongue; otherwise it will interfere with the impression.

The reason for forcing the plaster first under the lip, is to secure a good impression of the alveolar process and to prevent the lip

from being folded under against the rim of the tray when it is forced upward, and also to prevent the formation of air bubbles in the anterior part.

Removing Impressions.—After the plaster has set perfectly hard, remove the tray by bending the handle downward just enough to loosen the tray from the plaster. Be sure that the plaster has hardened. If hard it will break with a clean break, but if soft it will

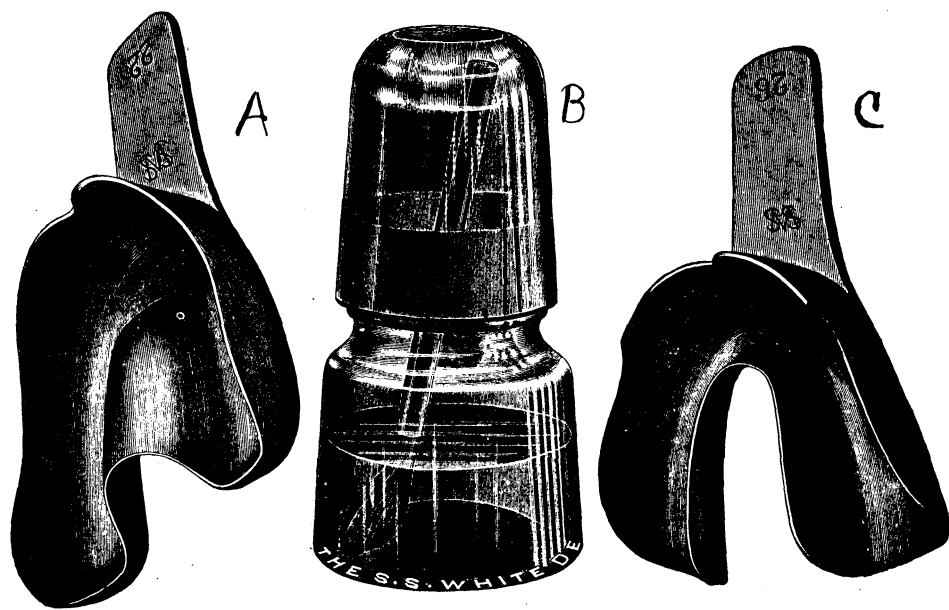


FIG. III.

crumble. With a knife cut two V-shaped grooves in the plaster over the region of the cuspids. Cut through almost to the tissues. Then, with the blade of the knife, pry off the anterior piece. Next break off the side pieces with thumb and finger and remove the part in the roof of the mouth.

If the impression is carefully taken and care is used, it should come out in about four pieces. However, if it is broken into a

dozen pieces, it will still be of service if the breaks are clean and none of the pieces have been lost in removing. Every piece removed from the mouth should be saved.

Putting Impressions Together.—It is not absolutely necessary to replace the pieces in the tray, as they can readily be waxed together, piece by piece; but to prevent distortion of the model, beaking or dropping the impression, etc., it is best to replace the pieces in the tray again. Some difficulty may be found at first getting the pieces in the tray properly. The safest method is to take the anterior part and the piece from the lingual surface of the mouth. Pass the two pieces gently down into the tray together. The lateral or side pieces should be placed in next. In placing in side pieces, raise the anterior and lingual pieces slightly in the tray to allow more freedom and room for inserting the side pieces. After each piece has been inserted into place, wax all together by placing a drop of hot wax at the point of each break. All air bubble holes on the surface of the impression may also be filled with wax. Smooth off any rough marginal surfaces with wax, where small pieces are missing.

It is always best to place the pieces back into the tray at once, for if allowed to dry, the hard rough surfaces do not admit a close union of the ends of the pieces. After waxing the impressions, allow it to thoroughly dry. This may be hastened by placing it in the sun or some warm place.

Preparing the Impression for Pouring.—After the impression has thoroughly dried, with a hair brush give it a coat of moderately thin shellac. Allow this to dry for 15 or 20 minutes; then give the impression a coat of sandarac, also moderately thin. If the impression is dry when the shellac is put on, the same is readily absorbed by the plaster and presents a good surface for applying the sandarac, which is the preparation which gives the smooth, marble-like surface to the model. Allow the sandarac to dry for about 20 minutes before pouring the impression. Never use silex, oil, soapsuds, etc., as a separating solution. Care should be taken in putting on either the shellac or sandarac. If the separating solution is too thin, the impression will stick to the model and in removing the pieces from the model occasionally a portion of the model will break off with a piece of the impression. Or, the pieces will stick so close to the model it is impossible to remove them without digging and cutting them away, which destroys the service and beauty of the model.

If the solution of shellac, or sandarac is too thick, the forms of the teeth, the gums, rugæ, interproximate spaces, sulcate grooves, etc.; are all obliterated, and the model comes out with a rounded surface and without shape or form and all the beauty and necessary details of the model gone.

Pouring the Impression.—Mix the plaster to a thin, creamy consistency and pour a little into the impression. Jog this down into the remote corners of the impression by tapping lightly on wood.

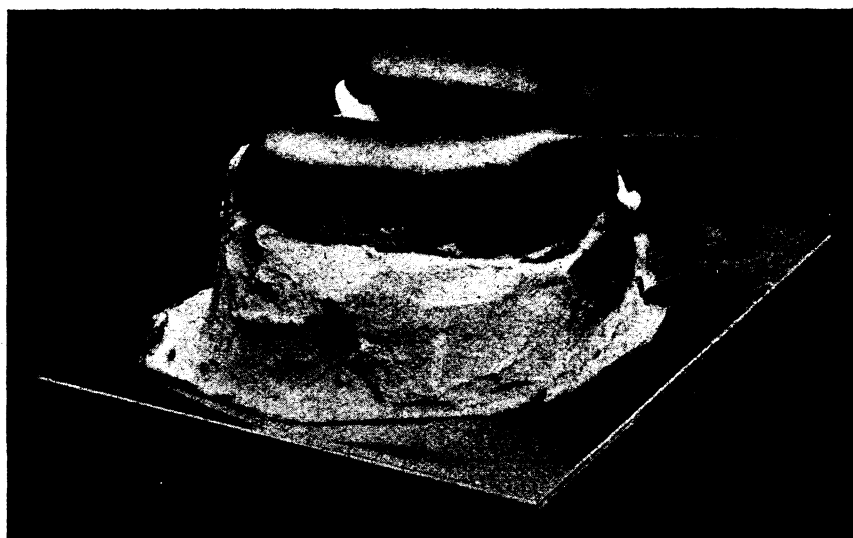


FIG. IV.

Fill to within one-half inch of the top, then pour plaster on a piece of glass to the depth of a half inch, turning the filled tray over on this, pressing downward until the top of the impression is about one-half of an inch from the glass. Fig. 4. This will insure a uniformity in the thickness of the top of all models. The reason for using the glass is to give the top of the model a fine, smooth surface

that conforms with the rest of the model. This surface aids the appearance and gives a good base for the model when placed in the case. Models should be as uniform as possible.

Separating the Model.—In about 15 or 20 minutes after pouring the impression, remove the tray from the model and break off the pieces of plaster, just the same as when removing from the mouth, using care not to break the teeth off. If there are any air bubble holes, fill them with plaster, and replace or restore with cement or plaster any teeth that have been broken off.

Shaping the Model.—Both the upper and the lower models should be cut square across in front and obliquely back on the side, and curved inward in the back, making about four cuts in all for each model.

Suggestions.—In taking impressions, if there is a tooth out of one or both sides, remember the location of the lost tooth and cut the impression from the top downward into the plaster that fills the space where the tooth was out. This will greatly aid in removing an impression, as the plaster will be weakened at that point and break much more easily.

In some cases, where the anterior teeth are either missing, very badly crowded or over-lapped, and the plaster is unusually thick, make a cut across the impression over the occlusional surface of the incisors or bicuspid and molars, as the case may require, which will greatly aid in removing the impression in this kind of a case.

On the front of each model the name of the patient may be written, on the top write the full name, age, etc.



PROSTHETIC DENTISTRY

By B. J. Cigrand, B. S., M. S., D. D. S.

(Professor of Prosthetic Dentistry and Technics, College of Dentistry,
University of Illinois.)

CHAPTER XXV.

A REMOVABLE DENTURE.

The difficulty experienced by the dental profession in attaining satisfactory results in lower buccal-dentures and the inconvenience they have given the patients, afford a most interesting title for an extensive discourse. The primary trouble seems to come from the instability of the denture; the process of mastication is very much interfered with, since the denture does not remain firm on the alveolar ridge, and in consequence greatly obstructs proper occlusion while masticating.

The profession has long wished for some appliance which would correct the uncertainties of these "lower buccal-dentures." Dr. Crigler, it appears, has devised a substitute which in many respects alleviates these undesirable annoyances. Few cases present a better field for contemplation or invention than those cases where on one side of the lower jaw the molars and possibly the first bicuspid are missing; and these cases are not unfrequent in a large practice. In fact, they are so numerous that practitioners have attempted innumerable methods without attaining the hoped-for success. Invariably we find, in the cases cited, that in order to replace these missing organs it become necessary to produce what is known as a "crescent base-denture," an attachment whose base completely encircles and encroaches upon the lingual surface of the lower teeth. Other operators have found it advisable to somewhat abridge the extent of the crescent by supplying gold-clasps to the base and attaching these to the natural teeth, thus affording some stationality to the denture while articulating or masticating. But there has not as yet been a substitute brought forth which in every detail answers all requirements relative to the cardinal principles—cleanliness, adaption, articulation and mastication. Not even in the Crigler method are these necessary requisites supplied—still by his method there is a decided step in the right direction, and if one will closely

study the underlying principles of his process this truth will be revealed.

In the first place by his manner of substitution, the entire lingual arch of the teeth is not covered or annoyed by foreign substance; healthy surroundings are furnished for the dental organs, and further, there is no encroachment on the lingual cavity, thus allowing the tongue all possible freedom.

The process of construction may at first sight appear difficult and even intricate, but on better acquaintance, one is impressed with the simplicity of the apparatus. In fact, one can hardly conceive of a process which will embody all the desired results and be free from technic.

Dr. Crigler advances two methods for ascertaining the same sequences, and it shall be my pleasant duty to illustrate and explain the *modus operandi* in the construction of a denture according to his recommendation. In the case before us, Fig. 1, the right lower molars are missing, the other teeth are in good condition and are in perfect anatomical position. The first step is to prepare in the usual way the second bicuspid for the reception of a barrel or telescope gold crown, after which solder upon its disto-lingual surface a piece of clasp metal (platinized gold) gauge 24, shaped much like Hogarth's line of beauty; adapt it to the gold crown, as in Fig. 2, and attach same solder, that is, flowing full the lingual contact, but permitting the buccal end to remain free as in illustration. The next step is to produce a piece of clasp-gold which will perfectly complement the crown attachment, Fig. 3, thus anchoring the clasp-complement. Now remove the complement and solder to it a bar of platinum or stiff gold, allowing the latter to extend over, yet not to rest upon, the alveolar ridge; then anchor the complement. Wax up that portion of the alveolus which you intend shall carry the vulcanite, then accurately fit and occlude the artificial teeth and proceed to invest the case and treat it as an ordinary vulcanite denture, Fig. 4; the subsequent steps relative to polishing or adjusting are readily understood.

The second method is very similar to the foregoing, differing only in the crown-bar and its complement. By this process the gold crown has soldered upon its distal surface a piece of gold or clasp-metal, gauge 24, and shaped like an equilateral with the cone missing, Fig. A; this is soldered to the gold crown in such a manner as

to leave unsoldered and free the lingual and buccal ends; its complement is produced as before described, Fig. B, that is to thoroughly embrace the crown-bar as in Fig. C.

This device is indeed ingenious, and its perfect stability as well as its durability recommend it to such as are hopeful of correcting in a measure the unsatisfactory and cumbersome dentures employed in present-day practice.

The time was not long since when every dentist prided himself on the great span of the bridge; he did not consider himself scientific or practical unless he ventured to restore by means of bridge-work, an entire upper denture, and anchor same on three or four natural teeth, and he felt he was ancient if he produced a vulcanite, aluminum or gold denture. Thus, was the low status of prosthetic work a few years since. Time, that great essayist of all that is good and pure, has so refined and cleansed this department of dental prosthetics, that only those who are familiar with the underlying principles of both the art and science can attain success. The day of "wild-cat bridge-work" has been relegated to the past and only empirics and characters are still crying in its behalf. In our profession, like in all organized society inclusive of governments, the conservative are the "pillar of strength" or the power behind the throne.

Bridge work has advanced in theory only when it has advanced in practice. In its two-fold evolution it absorbs from every available source whatever tends to broaden its art or perfect its science; it calls to its aid anatomy, chemistry, therapeutics, surgery, physiology, pathology, mechanics and sculpture, with each of which it is directly related; and the practitioners who have become most proficient and successful in the application are those who have mastered a full curriculum of dental science.

There will always be those who subscribe themselves among the radical and who are incessantly excusing the old—no matter how serviceable or appropriate—and inviting the recent, regardless of how ineffectual or disastrous.

My theme concerns bridge work but in a decidedly conservative sense, so much so that the bridge is a removable one; I need not relate to you the many objections to large or permanent bridges as I full well know that a qualified body of practitioners is familiar with the numerous shortcomings; but privilege me to remind

you of some of the more important demerits of the system and point out if possible why I much prefer detachable bridges or clasp-dentures.

In the first place our knowledge of hygienic laws forbids us from recommending the large permanent bridge, secondly our sad experience in repairing same has led us to a proper appreciation of the forces of mastication and occlusion and we have learned that a strong bridge must be firmly anchored and this latter point is the one which recent experiments and investigation have indelibly engraved upon our knowledge and practice.

The evident advantages of continuous crown-work have stimulated the inventive genius of dental prosthesis to improve the methods and forms of construction and extend its application; thus permitting the versed practitioner to insert on a conservative basis a crowned substitute which in respect to usefulness, appearance, durability and comfort, compares well with nature's master stroke.

Removable bridges are of late receiving much attention and few matters pertaining to our professional service deserves greater notice. Of the varied evolution of the detachable bridge-denture I refrain from writing as in the description of the one I gave you I will occupy some time.

The method I recommend relates to buccal dentures, and since we are most frequent called upon to replace buccal teeth, you will readily recognize the deserved importance attached to this subject.

I have many of these dentures in service and am convinced that from the point of hygienic and comfort they are a decided success.

The buccal cases to which I refer in particular, are those where the second bicuspid and first molar are missing, in either the upper or lower jaw, and where the adjoining teeth are possibly affected by decay. The method of construction is simple and there are many cases to which the system is applicable. The case in question, an upper right, I trim down the first bicuspid and if necessary devitalize same, and give it the shape of an ovoid molar. Then proceed to treat the second molar likewise, shaping it into a cylindrical pillar. Then produce gold telescopes for these prepared pillars and cement them in position. Next construct a gold bicuspid and molar crown having a solid cusp and of such a shape as to perfectly envelope the golden pillars. Position these crowns and take an impression and the maxillary antagonism, and proceed to swage a gold

saddle, completely connecting the two gold crowns. Now solder the saddle to the crowns and proceed to occlude the artificial second bicuspid and first molar (tipping same with gold cusps); wax same into proper position and after investing the case in the usual manner join the entirety with gold solder; finish up as your judgment well directs.

If it is desired to construct the same detachable bridge-denture and employ vulcanite to hold the artificial substitutes, the process of construction is slightly different. In this event the earlier stages of construction are the same as already described differing only subsequent to attaching the saddle of the two gold crowns. Several platinum pins are anchored in the gold bicuspid and molar crowns and a bar of silver acting as a truss soldered into a position as will not interfere with the setting up of the plain teeth.

After waxing up the case, flask it and pack pink rubber on the buccal surface and maroon on the palatal; vulcanize and finish as a metallo-vulcanite denture.

The various modifications necessary to adapt this method to individual cases will readily present themselves to the conservative practitioners.

I do not wish to be understood as inferring that the method I suggest is entirely original, for few inventions are, but I trust you will believe that this process of construction is a decided improvement over the methods in use heretofore. And if I shall have interested you in this mode of dental substitution and awakened a desire to encourage in your practice its application I feel fully satisfied that my paper has accomplished all that was intended.



OPERATIVE DENTISTRY

By R. B. Tuller, D. D. S.,

Clinical Professor of Operative Dentistry, Chicago College of Dental Surgery.

CHAPTER XXV.

In the last chapter it was made clear that a pin or dowel, to be of real lasting value, must be fitted firmly to the interior of the root—that is, the pin must be in touch with the root walls on all sides sufficiently to hold with considerable firmness without the cement. A dowel that fits so loosely that there is a considerable thickness of cement between it and the walls all around, is almost certain to become loose in time.

Now, with good sound roots, not hollowed out with decay, the fitting of a pin firmly is comparatively easy. Usually the canal needs to be enlarged a little to admit a pin large enough to be strong and unyielding under the strain usually put upon it.

Pin metal should be strong and stiff. The pins in Logan crowns, though large, are of platinum and are so soft as to bend too easily under the strain they get in the mouth. A much smaller pin, of a good, strong, stiff metal, is in most cases more satisfactory. Platino-iridium makes good strong pins and will stand any kind of solder. Enlarging root canals too much would naturally weaken the strength of the root. This of course should be avoided, and especially in small incisors. Roots are found frequently, however, that decay has hollowed out into regular funnel openings, and too large to fit a pin into in the usual way; and yet, such a root may be so repaired and fixed that it may furnish a good support for a crown, or bridge, even, in some cases. They are not ideal teeth, to be sure, but properly treated and prepared, they may do good service as supports for crowns and bridges for years. Of course such roots must be put into healthy condition, and filled at the apex. Now the rest of the canal to the orifice and often beyond may be filled (built up) with amalgam. It is often surprising what a good support may be made of a pretty badly broken down root, provided it is long and strong enough in the jaw; and even when the orifice is broken down below the gum. It is found that smooth amalgam will be very kindly tolerated against the flesh and there is no un-

pleasant results from such contact. One side of a root is frequently decayed above the gum when the rest is quite solid and good.

A good way to proceed with such places is to mix the first of the amalgam as soft as salve. Placed in this state against fleshy tissue it takes the shape of the surface it is in contact with and does not irritate. Amalgam mixed pretty dry is used now, not exerting any hard pressure, but gently pat the pieces to what has already been placed. This absorbs the surplus of mercury from what was first placed and equalizes the mass, leaving that against the soft tissue as smooth as at first, though harder.

Usually the rough interior of the root is sufficient to anchor the amalgam safely, but if it is not some undercuts must be made at such points as will permit of it. When amalgam hardens undisturbed it will supply the place of the root wall itself in holding a pin firm and unyielding. Cement may do this at first, but sooner or later it seems to give way under strain and pressure.

The way to make an opening for a pin through this amalgam is as follows: Shape a wooden pin to about same size and form of the metal pin that will be used. Melt a film of wax over the surface of this and putting a little very soft amalgam up near the apex of the root, push the wooden point into it and then fill up around it with dryer amalgam. Build up as high as required and leave the pin protruding a trifle, but do not try to remove it until the next day, when amalgam is thoroughly hard. Placing a hot burnisher on either side of the pin will warm up the film of wax so that it may be easily withdrawn, leaving a hole to which a pin may be easily fitted in the usual way. Such an opening as this leads directly to the apex; while if one had to be bored through it might easily take a direction to the right or left of the center with danger of going through the side, beside being a tedious operation.

In many instances the restoration of an old root in the above manner has made it possible to adjust a crown of a number of years usefulness. How bad a root may be utilized in this way with reasonable expectation of good service each operator will have to determine for himself. Of course the root should be well seated and firm, and yet loose ones have been put in good condition and utilized as partial supports in a bridge where too much strain did not come on them, and where, in fact, they were held so firm (there being other good supports), that they became themselves solid. Take a

case where there are two good end supports of a bridge, and a middle support is needed, a root that would hardly do for a separate crown may sometimes be utilized in such a bridge and do very good service.

In the practice of the writer a case presented where a bridge was very much desired, even if it lasted but a short time, extending back from the right superior cuspid and not a good tooth posterior to that. In the location of the second molar three roots remained which were entirely separate from each other, but they were very good firm roots. These were treated and filled. Then a post was made for each root and with them in position a little impression of them was taken in modeling compound, the pins coming away with the impression. Investing, the three pins were united with a cap soldered to them. This piece was then cemented in place and formed a good hold-fast for amalgam which was built up around and over it and shaped to simulate in a measure the crown, or so that a shell crown could be fitted to it, which was done when amalgam was thoroughly hard. In this shape this furnished the posterior support for the bridge, the anterior being a strong Richmond crown on the cuspid. This has had a couple of years of service and seems as good as at first, though the patient was given no expectancy of a long life for it.

Whenever a bad root is to be utilized (for what it is worth) it must have good careful aseptic treatment, and the canal must be filled with the care of any other root.

(To be continued.)



DENTAL THERAPEUTICS

(By Geo. W. Cook, B. S., D. D. S., Chicago, Ill., Professor of Bacteriology and Pathology, University of Illinois, Professor of Oral Surgery, Dearborn Medical College.)

CHAPTER XXIV.

In the discussion of the subject pertaining to therapeutic agents we have recognized many important features with reference to the action of certain agents in the body, and in one sense the study of medicinal agents and their effects upon the body is a study of physiological chemistry. In former times and up to the present we might say, it has been the custom to classify therapeutic agents as acting upon one particular organ or tissue of the body. But very little has been done by the great mass of medical men with the study of pharmacological action of drugs, consequently, it has been the custom to put as many medicinal agents together in a prescription as could consistently be done without making a so-called incompatible combination. Those prescribing and compounding such prescriptions have had practically no fundamental knowledge of the true physiological or pathological lesions for which they were treating, and have never taken into consideration the fact that the incompatibility of these agents must depend upon the fluids of the body, especially the saliva, which these agents first come in contact with, or the gastric or the intestinal contents. An agent that goes into solution in these substances might form a very different chemical compound than it would if it was dissolved in water, therefore, the study and the rational therapeutics must depend upon a particular kind of medicinal agent that is introduced into the body, and not upon a great mass of different chemical substance which is looked upon as incompatible in water. And one of the important agents when introduced into the body is in itself an inert body, but upon its immediate introduction and especially if it manifests itself in certain symptoms, it shows that this agent has been acted upon by certain fluids, thus producing certain chemical agents in the stomach contents, which manifests itself in a way that shows that this inert body has been changed and the substance formed from such a chain acts upon the body. We have reference here to sulphur.

The ordinary sulphides that are formed in the alkali series are of but little importance here, for the simple fact that they are but

little used in therapeutics. Many of the sulphides are usually weak salts, but when they come in contact with an agent like carbonic acid they are capable of breaking up and forming a hydrosulphuric acid, which, when coming in contact with certain other physiological fluids, has a tendency to break up and forming a free acid, which in the majority of instances acts as a strong local irritant. Therefore, the sulphides act as an irritant when introduced into the stomach and bowels, and in the great majority of cases they act upon the intestinal tract in a way that it increases peristalsis because of their irritating effects. Harnack has shown that when sodium sulphide is injected subcutaneously into the frog it produces a narcotic condition, which is due to depression of the central nervous system, and if the quantity is sufficient it causes weakness of the heart and skeletal muscles. The heart will continue to beat long after the skeletal muscles are completely paralyzed. The same observer showed that if the doses were not large enough to cause death and the animals were kept in a cool place, there would be an increase in reflex irritability, and in some instances the convulsions were very much like those of strychnine poisoning, with perhaps this difference, that the animal sometimes lived months in this intensely irritable condition.

The experiments on the mammalia showed when sulphides were injected intravenously they induced a violent convulsive manifestation, which indicated they were of cerebral origin. The respirations are increased, gradually slowing, and finally cease to further carry on the functions, which is due perhaps to the paralysis of the vasomotor center, followed by death. The effect the sulphides have upon the heart's action is probably due to decreased respiration, which is followed by the fall of blood pressure.

When the sulphides are added to drawn blood they bring about a certain chemical change by acting on the oxyhaemoglobin, which changes the color of the blood from a light red to a dark, which has the appearance of venous blood. When the sulphides are absorbed by the blood they change very rapidly by process of oxidation, and are excreted in the urine usually in the form of sulphates, and of an organic sulphur compound, the chemical constituents of which are practically unknown. It may be said, however, that small quantities of the sulphides escape in the exhalation from the lungs in the form of sulphuretted hydrogen, which in some instances might par-

tially account for the disagreeable breath that is so common with some people.

The sulphides have a tendency to dissolve the horny epithelium and certain hair follicles when applied to the skin, but if the application is made very frequent it will produce considerable irritation, resulting in inflammation.

Hydrosulphuric acid (sulphuretted hydrogen and hydrogen sulphide (H_2S)). These compounds usually exist as gas, consequently, differ from the sulphides of the alkaline series. These gases are extremely irritating and frequently give rise to very poisonous symptoms, and especially is this true in the presence of putrefactive changes in organic matter, especially where the decomposition is a proteid material. These gases, ordinary sewer-gas, if inhaled in a concentrated form readily causes death. If small quantities are inhaled for some considerable time it causes unconsciousness, a state in which the individual will remain for several hours and eventually pass into a comatous state, a condition in which they remain for considerable time with occasional convulsive seizures. These symptoms are said to be due to the direct action of the sulphide gases on the brain and the medulla.

Sulphuretted hydrogen in a weak form produces local irritation to the nose and throat, and if continued for some time causes pain and inflammation of the conjunctiva, dryness of mouth and throat, increase of tears and saliva. The hydrosulphuric acid 1:5,000 of air is sufficient to induce symptoms in man, and if inhaled for any great length of time will produce very decided symptoms. The poisonous effect of sulphuretted hydrogen is due principally to its local irritating powers, and when continued for some length of time produces certain effects on the central nervous system. The hydrogen sulphide may be said to be very poisonous to all forms of living substance. However, this phase of the subject is of but little importance in this connection.

The various compounds of sulphur, such as we have previously mentioned, are of but little importance in dental therapeutics. It is well in this connection to mention the sulphites, a group of bodies that have some advocates in therapeutic use, but, really it is a question whether they play any very important part as a therapeutic agent. It has been shown that they have a much more poisonous action than many of the other better known salts. The sulphites have gained some reputation of having some strong antiseptic prop-

erties. This conclusion was drawn, however, because of the fact that in the living tissue or tissue undergoing pathological changes these sulphites would extract from the tissue oxygen, which caused oxidation of the sulphites into sulphates, a condition which all sulphur compounds, as we have previously said, are eliminated from the body.

It has been observed that 96 per cent. of the sulphites taken into the circulating blood is changed to sulphates, and is excreted as such, while there are about 3 per cent. that pass off as sulphites, especially is this true when large quantities of sulphites have been administered into animals. It has been observed in man that from 30 to 40 gms. can be administered in 24 hours without producing any very large symptoms. The intravenous injection of the sulphites show that the red blood corpuscles are usually destroyed and they produce an infarction, and in this way produce hemorrhagic conditions, which are so commonly manifested where considerable of the sulphites have been administered.

Symptoms of gastric intestinal irritation have been shown to occasionally follow very minute doses of the sulphites when administered by way of the stomach. The practice so frequently followed by the use of sulphites to preserve meats, wines and vegetables, should be discouraged, for the reason that many people are easily affected by certain substances containing certain sulphites.

The three compounds that are usually used for medicinal purposes are the following: Sodii Sulphis (U.S.P., B.P.) $\text{Na}_2\text{SO}_3 + 7\text{H}_2\text{O}$; Sodii Bisulphis (U.S.P.) (NaHSO_3); Sodii Hyposulphis (U.S.P.) ($\text{Na}_2\text{S}_2\text{O}_5 + 5\text{H}_2\text{O}$). This first named salt is easily oxidized into sulphates, when brought in contact with the oxygen of the air, and is quite decidedly alkaline in its reaction. The second one of these salts has a disagreeable sulphurous acid odor and is acid in reaction, with a very disagreeable taste. The last named of these salts is a thiosulphate of sodium, has a cooling sensation to the mucous membrane, and is neutral in reaction. The first and last named ones of these salts are frequently administered internally to prevent the absorption of bacteria from pus formation, or, in other words, to keep the blood in an aseptic condition.

Many who lay claim to special knowledge in dental therapeutics recommend the compounds sodium sulphites and sodium hyposulphites in cases of alveolar abscesses, and other suppurative inflamma-

tory processes about the teeth and jaws. But it is a pretty thoroughly demonstrated fact now that this has no special beneficial effects but, on the other hand, subjects the kidneys and other excretory organs to a greater amount of work in eliminating the sulphates from the body.

I might briefly detail here some experiments that were carried on by Dr. Brown and myself some years ago in producing suppurative inflammation in animals, and then treating them with these compounds to see what possible effects might be produced in such conditions. We found that when administered by way of the stomach that the increased quantity of sulphates corresponded with the quantities administered, without any appreciable effect upon the suppurative process. If these compounds were intravenously injected they really increased the infected area by causing small nodular formations within the living tissue near the area of suppuration, and eventually resulted in the breaking down of the tissue, which seemingly would not have happened and which proved in control animals did not happen when the sulphites were not administered.

The work herein detailed showed conclusively that the sulphites administered by way of the stomach had but little, if any, influence on the local suppurative process, and if there was any influence it simply produced the effects of allaying the reactivity of the tissue to a bacterial effect, thus producing the possibilities of increased infection. With these facts before us and the experiments detailed by Pfeifer (in the *Arch. of Experimental Pathology and Pharmacology*, vol. 27), will show that the much relied upon theory of the benefits of sulphites, sodium and other forms of sulphites are probably of no benefit in local suppurative conditions.

(To be continued.)

ORIGINAL CONTRIBUTIONS

TOOTHsome TOPICS.

By R. B. Tuller.

I
Once
Heard
A certain dentist
Of considerable prominence say,
That nine-tenths of the dental profession
Were a dum lot of dubs; and could be led by the nose by the
other tenth.

And he then proceeded to relate how he and his cohorts had managed various affairs to bring about the ends they desired.

And this, very often, in the face of a very popular sentiment to the contrary—up to a certain point where he, or they, played the trump cards and took the trick.

When I look back over the past several years, concerning not local affairs altogether, I can recall many instances in verification of the claim.

When Simon says thumbs up, up they go; and when Simon says thumbs down, down they go. If Simon says wiggle-waggle, wiggle-waggle it is—or was. How sweet in harmony to dwell!

Well, now, I'm not arraigining the prominent gentlemen referred to, but the dum lot of dubs.

Are you one? That seems to be the verdict! Am I one? I refuse to answer on the ground that I might incriminate myself. I'm not dub-ious in my own mind, and I don't suppose you are. Let it go at that.

But what is a dub? Why, a dub is a dub; but there are varying stages of intensity, and consequent possibilities of cure in some of the milder stages. No *sure* cure. The *dubus bacillus* has not yet been isolated, nor the proper anti-toxine found. You see,

some inherit dubbishness (hopeless); some acquire it (may sometimes be cured, surgically, by cutting deep); and some have it thrust upon them (the other fellow). We've all been afflicted with the latter.

Now, citing a few of the degrees which may frequently have modifying prefixes or affixes or synonyms, we would say that a dub is often written O, and then the ring is rubbed out.

A dub-dub has a synonym in "two-spot"—the lowest card in the deck, and yet, paradoxically, always "on deck." You can't lose 'em.

A rub-a-dub-dub is a rattle-headed, babble-lip, always "buttin' in" and making a noise with his mouth, but, still "nuttin' doin'."—hot air.

A gazagazook is a synonym, too; but you can't tell what it is. He keeps his trap closed, looks sapient, and passes for a guisewy. It is a guisewy who keeps his own counsel—about some things. A lot of them are plain dubs and you don't know it. You may suspect. *They* know it all right, and keep mum.

The odonto-dub is a dub dentist who dubs at dentistry when he ought to till the soil, or drive mules and spread fertilizer with a pitchfork.

Another kind of an odonto-dub calls himself a stomatologist, and you couldn't safely bet he'd make a good chiropodist.

Another odonto-dub talks about the inlays he put in for Mrs. Potter P—— and the bridge work he's doing for Marshall F——, when he's the fellow who comes down Sundays and puts gold shell crowns on front teeth, or any old teeth, for counter-hoppers and servant girls, at \$4.00 per. He's the dub that has from thirty to forty crowns in process of construction—so he tells you. He buys up a job lot of seamless 14k gold ones at 98c apiece and puts them into a 24k pickle, hence they are in "course of construction."

On Washington's birthday he put on two 16 *tooth* bridges—upper and lower—on 4 supports all told, and got \$499.00 for the job (j-o-b), and only the day before he went out and bought a hatchet, or a picture of one, to hang on his office wall. But he'll never be president—of anything but a dub club. They ought to have a club whether they have one or not—and a good hard knotty one.

Now, there are a whole string of things I can think of that are not wholesome and there's a dub to fit into every one of them. It looks as if the prominent dentist, referred to at the front end

of this, was right; but, then, there is an awful lot of them in the world. It ever was and ever will be. There is no remedy, except in some individual cases, and then it is a punitive measure and not a remedy, perhaps. There are some that ought to have their blocks knocked off and then be kicked repeatedly on the western slope to the tune of Hit-'em-agin; He's Irish. I dodge.

There are some, too, who, aside from the above punitive measures, perhaps, ought to be taken out and slapped on the wrist and have their cigarettes taken away from them.

If the prominent gentleman was correct in his figures there are a lot of you—nine-tenths—so I'll leave it to you to class yourselves. I know dum well where I belong. Where? Well, if I had all that was coming to me I'd—. Excuse, me, some one is ringing me up on the 'phone. Hello! Hello! Yes. Yes, I am the writer *of some* of the articles. Want to punch who?—the editor?—I'm not the editor. You better call on Dr. Cook. How's that? Me? I'm not in town. Why, I'm on the long distance. I'm out of town—well, I'm out hunting and can't say when I'll be back. You go and see Dr. Cook.

ORAL HYGIENE.

By Albert J. Wright, D. D. S., Brooklyn, N. Y.

Oral hygiene gives a theme for practical thought which is of great value to the dentist and we have no better antiseptic for encouraging oral hygiene than Glyco-Thymoline. I always instruct my patients in the daily use of this solution, and urge upon them the importance of such a measure. The dental profession today is not only caring for diseased conditions of the oral cavity, but it is giving careful consideration to prophylactic treatments which will arrest or prevent disease. To maintain a healthy condition of the mouth and its secretions, I find Glyco-Thymoline invaluable. It will inhibit the propagation of bacterial life and neutralize destructive acids. The continued use will also guard against attacks of acute inflammatory diseases such as tonsillitis, diphtheria or Catarrhal pharyngitis. Another fact I have noticed: Thymoline through its peculiar exosmotic property, rapidly depletes any existing congestion, stimulates capillary circulation, checking or preventing inflammatory processes.

ABANDONED METHODS REPRODUCED.

By L. P. HASKELL.

One would suppose it unnecessary in these days of progress to re-introduce abandoned methods of 50 years ago, and yet such is being done in "Continuous Gum Plate on *Modern Lines*."

My first continuous gum sets of 1851 were constructed precisely as the above *modern* method, except the use of the aluminum bar, which is entirely unnecessary. As we had no continuous gum teeth were obliged to use, as in this *modern* method, plate teeth, backed as for gold work, and the porcelain applied simply to the teeth, without covering the palatal surface, making a very inartistic denture.

On the other hand, the beautiful continuous gum teeth of today, combined with a perfect imitation of the natural palate, contouring the lingual necks of the bicuspid and molars, and reproducing the rugæ, makes in all respects an ideal denture.

There is no reason why the palatal surface ought not to be covered, and every reason why it should, among which is the fact that many persons in laughing or singing show the plate in the palate.

Some years after the introduction of rubber in the mouth, several dentists conceived the idea of combining continuous gum with rubber plates. This was soon abandoned as not altogether advisable.

Some years later a Chicago dentist had columns of advertisements in the daily papers of his *new* "combination dentures." He, however, soon abandoned it. Later on a Detroit dentist issued circulars announcing a "new method," which was simply the same old thing. And still later an Ohio dentist repeated the thing, as new and original.

Still more recently a concern was started in this city, with column ads in the daily papers of *new* methods, "no bridgework" about it, but the "new Alveolar Method," which turns out to be the saddle bridge, now discarded by the better dentists as uncleanly.

Anything to rope in the uninitiated is the order of the day.



EDITORIAL

DENTAL EDUCATION

The problem of dental education is a subject that is now being discussed more generally throughout the United States than it has since dentistry first took its place as a specialty in caring for the diseases of the oral cavity and restoring lost organs of mastication. In the early organization of dental colleges it was thought that scientific training was unnecessary, and the early dentist was simply a mechanic. It soon became apparent that the field of usefulness might be extended to the treatment of pathological conditions of the teeth; and out of such there was organized special institutions for training and equipping individuals for this specialty of the healing art. After a number of colleges had been organized throughout the country, the majority of which were private institutions, of necessity located in large cities where special education of that kind could be taught, and at the same time earn sufficient income to make the institution self-supporting.

The various teachers and heads of such institutions found it necessary to organize the National Association of Dental Faculties. This was a great step in advance, as it brought men together who were financially interested in these institutions who had money invested in private educational enterprises. In one sense this could be said to have advantage, in that it furnished keen activity in trying to produce such conditions of their own institutions as to give the best appearance to prospective students. On the other hand, such an arrangement made it possible for institutions to solicit students without reference to their moral and intellectual qualifications for the practice of such an important specialty of the healing art. There have grown out of such a condition many of the cheap advertising parlors and fake institutions, and what is true of dentistry might also be said to be true of medicine.

As has just been said, the earlier conception of dental education seems to have manifested itself in the mechanical phase of the subject, and in this direction the mechanical part of this branch of the healing art has been raised to a high point of proficiency. Graduates from these institutions went into practice with considerable ability to insert fillings in teeth and to restore lost organs of mastication, very few, however, comprehended the true value or possible advantages or disadvantages that may arise in the physiological function of

the individual in whose mouth they restored to usefulness these important members of the organization of man.

In the early organization of dental colleges there were some attempts made to introduce scientific studies into dental education. While it is true that physiology and chemistry, and the subject of anatomy, were taught in dental colleges, it amounted to but little more than what would ordinarily be classed as high school work. Out of such a condition the advocates of scientific education, in connection with practical training of the mechanical part, have fallen short of educating the student in the scientific part to anything like the possibilities as presented in the higher and better education for a professional training in subjects pertaining to the treatment of disease as manifested in the oral cavity; consequently, those advocating scientific training for the dental student are pooh-poohed by those who see nothing but the business end of the profession. These so-called practical dentists pride themselves on being the representatives of the practical side of dentistry, thus allowing the members of this branch of the healing art, to a very large extent, the humiliation of being "excommunicated" by the so-called classical scholars. The practical men of the profession believe that the idols (mechanics) whom they worshipped—by rule of thumb—have been the source of past prosperity, and will suffice for the future welfare of the art and science of dentistry.

The majority of our best educated dentists are still of the opinion that the scientific subjects of dentistry are speculative rubbish, and that the so-called theory and practice of dentistry have practically nothing to do with each other, and many have expressed themselves as believing that the scientific habit of mind is an impediment rather than an aid in the conducting of a successful practice. These questions have been discussed from time to time by various members of the profession pro and con, in and out of the Faculties Association, as well as the National Association of Dental Examiners.

Certain schools have for a long time placed the scientific branches of studies in the hands of very competent teachers, and advocated a high standard of admission for the reason that they felt they had as support the name of "university." The regents or trustees of such universities ask: Why have your classes diminished in numbers? There could be but one reply to such a question. Because of our requirements. The result is that university trustees are no more anxious to spend money on dental education than are the others. The result is that the support of dental education has had to come

from the profession. Notwithstanding all this American dentistry has led the world.

While the Faculties Association has not lived up to all its rules and regulations, still it has done a great work. The time seems to have come when it is necessary for a readjustment in dental education. The National Association of Dental Examiners has said that colleges must comply with rules previously established by the National Association of College Faculties, which shall be thirty-two weeks of six days each. The three schools in Chicago have agreed upon this, and as the matter stands at the present time the requirements will be high school graduation or its equivalent, and three years of nine months each in college.

The Chicago Dental Society had the good fortune to have at its March meeting President James, of the University of Illinois, who delivered an address on dental education. Dr. James outlined what he considered a liberal profession, mentioning the relation of a liberal professional education to general culture. He referred to the relations of the profession to the public. Dr. James pointed out the fact that dental education should be such as to properly fit the individual for the practice of dentistry, regardless of whether or not such an education be obtained in high school or in a dental college course. He further stated that when the student had completed all requirements he should be graduated, regardless of the time of year when such an education was completed.

At the present time it is questionable whether such a course could be followed out on account of certain laws and state board regulations. There is no question but that such a course would practically be ideal for dental or medical education, because teachers see every day how necessary it would be for some students to remain in their course of work longer than would be necessary for some other individual, and perhaps it would not be solely necessary that he take a full course for another year, yet as the courses are laid out in our colleges at the present time a student must remain a full year if he fails to fulfill the prescribed course. Some say it is not necessary that he take all of the studies over again in his senior year, but if he has to stay over for one or two studies or perhaps a few points in fillings or in prosthetic work, it means practically the loss of another full year, with the opportunity of acquiring a habit of loafing or in many instances, having to work at something entirely foreign to his profession, in order that he may earn a sufficient income to defray his expenses during the year. The suggestion that was made by President James along these lines are questions that will be dis-

cussed more in the future, with reference to dental education, than they have been in the past.

Taking into consideration the peculiar technical learning that is so essential to the practice of dentistry, it becomes manifest that it requires both a scientific and mechanical education. It is a phase of education that has never been brought before the world of educators, and has been but little discussed except by the profession alone, who in the vast majority of cases have obtained but a meager preliminary education and have passed through their college training in a very haphazard way. Broad-minded and well trained university men have discussed this phase of education but very little. It is true that a few university men have discussed certain phases of dental education with some members of the dental profession, but as a matter of fact, the dental profession and especially its educators, have never been thrown into intimate contact with teachers, who have spent years in general and higher education. Therefore, the dental profession has not, as a rule, discussed education to any great extent, other than merely discussing some mechanical phase of the art side of the profession.

It is true that in dentistry a few individual men have been able to hold their own against the world and keep alive the old traditions of intellectual advancement, but in the majority of cases these men are what they are merely by virtue of their native intellectual force, and of a strength of character which will not recognize impediment. They have not been trained in the advancement of science, but in some instances have stormed the walls of this edifice and in a sort of an irregular way and with much loss of time and power have obtained some legitimate and prominent place among scientific thinkers. Consequently, the dental profession cannot expect to obtain a strong hold upon and become closely identified with intellectual advancement until she is accepted into and becomes an intimate part of the literary and broad scientific advancement of other professions and branches of learning. And such a condition will not take place until men who enter the profession are more willing to make greater sacrifices than they are at the present time, in better preparation of their own cultivation and become more closely identified with the progress of education in all the various broadening and intellectual schemes of culture and advancement. Therefore, the Chicago Dental Society has been extremely fortunate in having so broad and such a well educated gentleman as the president of this great university to discuss these most important problems relative to a better and higher education. G. W. C.

SOCIETY PROCEEDINGS

PORCELAIN INLAYS*

BY GEO. W. SCHWARTZ, M. D.

The subject of Porcelain for restoring the lost portions of natural teeth consisting of inlays, fillings and restorations has been so thoroughly written about and discussed in the past five years, it would be folly for me to attempt mentioning all the truths that have been told or prepare a resumé of the mistakes that have been made. When there is more than one paper to be read in an evening it is my belief the essayist should not consume more than thirty minutes in reading his paper, that the discussion may reveal its true merits so the essayist himself may also listen and learn, with this in mind my effort will be to read on the subject of Porcelain Inlays as briefly and as logically as my knowledge will permit, acquainting you with how little I know about the work, hoping it will encourage those older men who have not accepted it as necessary, useful and practical, and may these few following lines be an inspiration to the younger men who are entering the Dental Profession for their life's work. To both let me say, the Dentists who have become skilled in the use of porcelain for fillings and inlays are sincerely and rightly enthusiastic for its use where indicated. It requires experience in the use of porcelain as well as exceptional judgment in selecting the case, to inlay and fill with it.

Porcelain is frequently seen in a place in the mouth where a gold inlay or a gold filling should have been placed.

If this society will bear with me, may I say too, we see teeth filled with all sorts of fillings that clearly indicate amalgam should have been used, *yes that much abused amalgam.*

Dentists who are to be known as the conservative operators in the future must know the value of all the filling materials from porcelain, the highest type, down to gutta-percha.

The dentist who says "all porcelain or nothing," or "as a tooth needs saving use porcelain." His knowledge being limited to the use of porcelain only, would cause doubt in my mind as to his accomplishment as a conservative dentist. More harm has been done

*Read before the Alumni Meeting of the Dental Department, State University of Iowa, at Iowa City, February 6-7

by over-enthusiastic men in the first few years use of any new material for filling teeth than at any other time, this is as it should be, and early shows us our mistakes. Porcelain, having gone through the experimental stage, is safe as taught by the experienced conservative men. No one should attempt porcelain work in the mouth, until he has been correctly taught and become proficient in manipulating it out of the mouth. The faddists have been encouraged by their successes to attempt things in porcelain now proven to be irrational, which invited failure for themselves and discouragement for the timid and conservative, until the men who have found the happy medium, pointed the way to its correct use with rational judgment. Then only do we get the true value of any material for saving and restoring decayed teeth.

The consecutive stages in making a porcelain inlay or porcelain filling are:

1. Selecting the cases.
2. Preparing the cavity.
3. Making the matrix.
4. Selecting the shade.
5. The choice of body and fusing the porcelain.
6. Setting the inlay.

SELECTING THE CASES.

No doubt many of you will agree when I state less judgment has been used, and more risks assumed in putting porcelain fillings in the four superior incisors than any other teeth in the mouth, for the reason, there are no other teeth the patient would rather have porcelain fillings in, owing to their conspicuousness, and it requires great courage to inform a patient that an upper incisor tooth should be crowned. Incisors either centrals or laterals, that are as badly decayed as Figure 1 and 2, in my practice there is no hesitation to advising crowns, even tho I have to devitalize the tooth to do so. Where the porcelain must extend to and include the cutting edge, I seldom put in a porcelain filling, unless the incisal end of the enamel is exceptionally well supported; because in most instances either the enamel or the porcelain by reason of the cavity preparation becomes chipped and the object of the porcelain which is *beauty*, is defeated. I know fillings can be made that look beau-

tiful at first for such cases, but time soon changes their appearance and often dislodges them as well; and I am aware also that there are porcelain enthusiasts who will take issue with me in the discussion of this paper, for we have the most ingenious cavity preparation printed and shown in the journals, and sometimes drawn on the blackboard at society meetings, but rarely seen in the mouth, that have stood the test of time and use.

THE PREPARATION OF CAVITIES.

The cavity to receive a porcelain inlay, filling or restoration, should be so prepared as to divide the strength as equally as possible between the enamel of the tooth and the porcelain, differing from a gold and other fillings, in that beveling of the margins must be avoided. While mechanical retention is essential, we cannot use dovetails nor slight undercutting. The seat for the same should be as liberal as the cavity will permit, and as square as the making of a matrix will allow. No great amount of dependence should be placed in the cement for retaining the porcelain. All preparation should be with the view of being able to draw the matrix from the cavity without distorting it in the least.

The instrumentation for preparing these cavities should be started with the chisel followed by the bur and excavator, a hoe and a hatchet having good use in this work as well as the square end fissure and inverted cone burs, finishing of margins can be done nicely with small stones mounted on delicate mandrels, and where accessible, finished and squared with fine grit discs.

MAKING THE MATRIX.

There is some contention among inlay workers as to which is the better method; burnishing the matrix material directly into the tooth or to take an impression of it, make an amalgam or cement form and swadge the matrix, for my part both have their uses. It is my usual custom to take an impression with gutta-percha of the cavity wet and cool it, then dry the cavity and either rub it with soapstone or talcum powder, or coat it with thin vaseline or alboline. Then smear the gutta-percha impression with cement mixed to the consistency that it will take a sharp impression of this cavity, let it remain until thoroughly set, when it will draw with a distinct marginal outline. Imbed this impression in plaster deep enough to make a good amalgam form of the cavity. After the amalgam has

set thoroughly, remove the plaster and warm the gutta-percha, when it will easily come away from the amalgam, and usually bring the thin film of cement with it. Should any cement remain, it can usually be removed with an excavator; but should it adhere, soaking it in a strong solution of ammonia will dissolve it so it can easily be removed. The instructions accompanying all swadging presses are so explicit there is no need of my describing it here, or the various details of the swadging process. In my practice the Brewster press and water bottle systems are used. The thinness of the matrix material is a matter governed by the size and shape of the cavity.

When burnishing the matrix into the cavity directly attention should be called to one point in particular. The gum should be well pressed away from the margins of the cavity for a few days, before it is prepared by packing gutta-percha into it, to push the gum back far enough that a good marginal impression may be given to the matrix.

In my experience, better results are obtained in many cases by swadging the matrix first and putting on a foundation bake, then placing it in the cavity in the tooth and burnishing to the margins, for this reason you have the seat of the matrix so stiffened that you can hold it in place, and the heat necessary to fuse the porcelain has annealed the platinum so it can be readily and kindly burnished. By not being too radical with either method, I feel I have found the better use of each.

SELECTING THE SHADE.

Close adaption to margins and matching the shade decide the beauty of the porcelain inlay, consequently much depends on the color of the same when set. All matching should be done before the rubber dam has been applied. After being satisfied of your shade in a natural light, if you wish to be critical, try it in artificial light, viewing it from each side of the patient, that you may come to a firm conclusion in regard to the shadow problem, we have found by experience that porcelain fillings for the mesial surfaces of the eight anterior teeth, should be a shade darker than the tooth, while those for the distal surfaces should be a shade lighter, for second bicusps and molars it is safe to bake from one to two shades darker as a rule with few exceptions. In centrals and laterals, we

are correct in using white as a foundation, finishing with the colors indicated, nearly all others posterior to these, should be of yellow or brown foundation. The color of cusps in most all bicuspid and molars incline to blue, in the majority of teeth, the cusps are lighter at the point and the body should be built on with this fact in mind.

SELECTING THE BODY.

Again we come to a place where great minds differ and paths divide. Where the high fusers scoff at the low fusers and the low fusers look with pity on the high fusers, each feeling satisfied that he has the only method and material that insures success, when the truth of the matter is they are both so good, equal success can be had with either one, when a working knowledge has been acquired. I have been shown this by work from skilled hands, one man using high fusing and the other using low fusing porcelain.

I believe any beginner in porcelain inlay work will be able to attain success were he to adopt either one. Most of my work is done with a platinum matrix and high fusing porcelain, but I have used enough low fusing to know that I would not cease making inlays if I could get no other, if one learns only one method, it is liable to bias their opinion. My advice to those just entering the work is to learn the use of both bodies and not become one sided until they have gone through the technique of both; too much and too little being a fool's measure, learn to reject the weeds and keep the flowers of each. The results with both Brewster and Jenkins bodies have given good results in my work. Much stress has been put on the baking of colors in layers to obtain a close match. In inlays, some of my best results have been had in putting on the last bakings, by mixing colors to get a blend, not depending on the layer proposition at all; of course should you wish the cervical yellow and the cusp blue, you would not mix them, but we can put the layer of yellow where it should be and blue in its place, baking them at the same time, it not being necessary to bake each separately. In working colors for cusp, restoration for molars, and bicuspid, we find the use of dark brown and dark yellow in the fissures, as the case may indicate results in good effects. The use of oil colors for staining inlays should not be overlooked, most satisfactory and encouraging results may be had in their use artistically in the fissures and for staining the buccal margins to get natural effects, and

without hesitation advise making use of them, in using porcelain from a new bottle, do not trust it until you have determined its exact shade. Bake a small button from each bottle, bringing it to a good glaze, but not overfusing. Paste this on a white card and glue it to the bottle, then you know what is in the bottle and the color it will bake.

FUSING THE PORCELAIN.

First test your furnace to learn what time it requires to biscuit and to glaze. To do this, test it on the lowest button it will biscuit in a reasonable length of time, by putting a small pellet of gold on a fireclay slab and timing it after the gold melts, make each test with a fresh mix of porcelain; learn to bake at as low heat as is possible. It is the belief among those who have made experiments that porcelain baked at a lower temperature for a longer time results in tougher porcelain, the glaze being the same.

There are many ways of baking, first by the naked eye watching the work, by the pyrometer, by the Roach Method, which is automatic and ingenious, and by the gold test which I am accustomed to and use, watching the work with the naked eye I abandoned early, concluding it was no benefit to the eyes, if not harmful. There is no accuracy in it and my belief is, if long continued, would injure the eyes. When I wish to look in my furnace, I use colored glasses; having a pair of amber and smoked, each. Always using them when soldering with an oxygen blow pipe. With the matrix fastened in lock pliers for the purpose, ready to receive the porcelain, first varnish it with a thin shellack varnish, this prevents the porcelain from adhering to the matrix and warping it while baking. Mix your foundation body the color desired, and the consistency required. Little by little fill the bottom from one-third to one-half full, jarring it down with a small keyhole saw blade drawn across the end of the pliers near the matrix, jarring by this method is much more effective than by tapping and will more easily direct the body where you want it to flow. I try to mix the body stiff enough that it will not run through the matrix should there be a small tear in the bottom. It makes no difference if there are a few holes or tears, so long as the marginal edge of the matrix is in continuity. After the first baking, fill the crevices where shrinkage has taken place with the same body and bake again, the first bake should be a good biscuit and the second, just to a glaze, there are

at least two more bakings to be put on of enamel body, and these bakings have their effect on the foundation body also; consequently you do not want it a high glaze the second baking. If you are using the swadging system, replace it in the amalgam form of the cavity and swadge it to place in the press, if you are burnishing directly in the tooth, try it in and burnish to margins. Now proceed with your enamel body for the final bakings, taking particular pains not to have porcelain overhanging the margins of the matrix, my preference would be to have an inlay a trifle shallow at the margins than too full. I do not use blotting paper, napkins, or any other material to absorb moisture while working the body for small or medium sized inlays and fillings. I depend on jarring with the saw mentioned and evaporation. Neither do I use alcohol, gum arabic, tragacanth, or any of the substances that evaporate or stiffen, I use plain water and find it produces good results.

SETTING THE INLAY.

Before removing the matrix trim it close to the marginal edge leaving one point to be grasped by the pliers that it may be tried in the cavity easily. If close attention to detail has been followed they are generally correct, should you find however, the inlay to be shallow at some given place, you can build on more enamel and bake again. It is a good rule to try every inlay and filling in the cavity before removing the matrix. Begin by carefully coaxing the foil away from the marginal edge of the porcelain by pulling outward and downward toward the center, matrices having been varnished strip from the inlay more readily than those that have not. Should a small fragment or two of platinum remain it can be removed with a sharp excavator or carefully ground off. It would not make any material difference if a small portion were left on. For my part, I like a good layer of cement under the inlay, I believe they stay in place better with a good film of cement than they do with a thin film. I do not want the margins to show a distinct line of cement, however, and to avoid this when I etch the inlay on the cement side I previously bury it in soft wax until the marginal edges are protected from the action of the Hydrofluoric Acid on them. Do not make the mistake of heating the inlay and sticking it in the wax but warm the wax and push the inlay in it. After a few moments application of the acid, wash and brush it, then with a cotton pellet wash it with alcohol and dry with a chip blower or

compressed air. If desired apply the rubber dam, otherwise keep dry with cotton rolls, they are so convenient no one setting inlays can afford to be without them. The cavity dry and ready to receive the inlay, with a small pellet of cotton apply some of the cement liquid to the cavity and then dry it out again with pellets of cotton and the chip blower, this etches the cavity so the cement adheres much better than it would otherwise. Sometimes it is desirous of having a handle to put the inlay in the cavity with, a small quantity of sticky wax on the end of a wooden toothpick answers the purpose, to drop an inlay when the cement is in the cavity is an awkward thing to do, not mentioning the embarrassment; after the inlay is in place, retain it in the cavity by pressure between the teeth with a spatula, a toothpick wedge shaped, by tying it with floss or by holding it in place with linen tape. It is my custom to use the spatula or the floss. After the cement has sufficiently hardened, remove the excess and then allow the patient to have the mirror. It is unwise to let the patient see the inlay in the cavity previous to cementing it, for the reason the line of cement shows so plainly for the first day or two it is liable to bring disappointment by creating the impression of how beautiful it was before it was cemented, in a few days the cement will be less conspicuous and they will be more pleased than when first put in, thus making each patient a walking delegate for your future success.

In concluding this paper, I feel it my duty to say something of the recent literature on porcelain art, at no time has any subject held so much attention or had so much written about it as has porcelain art and especially porcelain inlays.

I would like to call to the notice of the members of this society the Dental Summary of January, 1903, and the American Journal of Dental Science for July, 1904. They have been a great help to me, and I am indebted to the authors of the articles for some of my success and thank this society for the means to acknowledge it. Last January I had the pleasure of hearing the best paper I have ever heard read on porcelain inlays, by Dr. Nyman of Chicago, before the Odontological Society of New York, as soon as it is published I can recommend it to be a benefit to all porcelain workers.

Some things have been purposely omitted to reduce the length of this paper that the discussion may be all the more. Hoping I will not be disappointed I wish to thank this Society for its honor to me.

SOCIETY ANNOUNCEMENTS

AND REPORTS OF MEETINGS

NATIONAL SOCIETY MEETINGS.

- American Dental Society of Europe, Geneva, Switzerland, April 21-24.
 Lewis and Clark Dental Congress, Portland, Ore., July 17-20.
 National Dental Association, Buffalo, N. Y., July 24th.
 National Association of Dental Examiners, Buffalo, N. Y., July 24.
 National Association of Dental Faculties, Buffalo, N. Y., July 27.
 Northwestern Dental Association, Rutland, Vt., Oct. 18-19.

STATE SOCIETY MEETINGS.

- Alabama Dental Association, Gladsden, May 9-12.
 California State Dental Association, no meeting except Lewis and Clark.
 Connecticut State Dental Association, New Haven, April 18-19.
 Delaware State Dental Association, Wilmington, April 5th.
 Florida State Dental Society, Sea Breeze Beach, May 31.
 Georgia State Dental Society, Atlanta, May 4-6.
 Illinois State Dental Society, Moline, May 9-10-11.
 Indiana State Dental Association, Indianapolis, July 27-29.
 Iowa State Dental Society, Des Moines, May 2-3-4.
 Kansas State Dental Association, Topeka, May 18-20.
 Kentucky Dental Association, Lexington, May 15-16.
 Maine Dental Society, Portland, July 18-19-20.
 Massachusetts Dental Society, Boston, June 7-8.
 Minnesota State Dental Association, Minneapolis, June 1-2-3.
 Mississippi Dental Association, Jackson, April 18-19-20.
 Missouri State Dental Association, St. Louis, May 24-26.
 Nebraska State Dental Society, Lincoln, May 16-17-18.
 New Jersey State Dental Society, Asbury Park, July 19-20-21.
 New York State Dental Society, Albany, May 12-13.
 Oklahoma Dental Association, Oklahoma City, May 15-17.
 Pennsylvania State Dental Society, Philadelphia, June 27-28-29.
 South Carolina State Dental Association, White Stone Springs, July 18-19-20.
 South Dakota State Dental Society, Mitchell, June.
 Texas State Dental Association, Austin, May 18-19-20.
 Vermont State Dental Society, Rutland, March 15-17.
 Wisconsin State Dental Society, Oshkosh, July 18-19-20.

DENTAL TRADES MEETING.

A meeting of the American Dental Trade Association was held March 13 and 14 at the Hotel Lincoln, Pittsburg, Pa.

PENNSYLVANIA STATE DENTAL SOCIETY.

The 37th annual session of the Pennsylvania State Dental Society will be held in the Bellevue-Stratford Hotel, Philadelphia, on the 27th, 28th and 29th of June.

MICHIGAN STATE BOARD OF DENTAL EXAMINERS.

The Michigan State Board of Dental Examiners will hold their next examination at Ann Arbor, Mich., May 16, 1905, at 9 o'clock a. m.

CHARLES H. OAKMAN, Sec'y.

OKLAHOMA DENTAL ASSOCIATION.

The Oklahoma Dental Association will meet in Oklahoma City May 15, 1905, and will hold a three days' convention. A great many dentists are expected, and preparations for their entertainment are being made by the local organization.

PENNSYLVANIA STATE BOARD OF DENTAL EXAMINERS.

The Board of Dental Examiners of Pennsylvania will conduct examinations simultaneously in Philadelphia and Pittsburg June 6-9, 1905. For papers or information applicants for examination must address Dr. Nathan C. Schaeffer, secretary Dental Council, Harrisburg, Pa.

NEBRASKA STATE DENTAL SOCIETY.

The 29th annual meeting of the Nebraska State Dental Society will be held at the Lincoln Dental College, Lincoln, May 16, 17 and 18, 1905. The Clinic Committee promise us the best meeting in the history of the Society. All reputable members of the profession are invited to be present. Fraternaly yours,

M. E. VANCE, Sec'y.

KANSAS STATE DENTAL ASSOCIATION.

The thirty-fourth annual session of the Kansas State Dental Association will be held in Topeka, May 18, 19 and 20, 1905. Special attention is being given to the clinical program. A cordial invitation is extended to the profession. Headquarters at Copeland Hotel.

F. O. HETRICK, Sec'y,

Ottawa, Kan.

THE OKLAHOMA DENTAL ASSOCIATION.

The 15th annual meeting of the Oklahoma Dental Association will be held in Oklahoma City, commencing at 8 p. m., May 15th, and

continuing until the evening of the 17th. Indications are for a large and enthusiastic meeting. The profession is cordially invited to attend.

C. L. WHITE, D. D. S., Sec'y,
115½ Main St., Oklahoma City, Okla.

CALIFORNIA STATE DENTAL ASSOCIATION.

At a meeting of the Board of Trustees of the California State Dental Association, held in San Francisco February 10th, it was unanimously decided to adjourn the State meeting for 1905, in favor of the Lewis and Clark Dental Congress to be held in Portland, July 17, 18, 19 and 20.

JOSEPH LORAN PEASE, Cor. Sec'y.
Central Bank Building, Oakland, Cal.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The annual meeting of the N. A. D. F. will be held at Buffalo, commencing at 2 p. m. on Thursday, July 27, 1905. The Executive Committee will meet at 10 a. m. the same day. Special business to come before the N. A. D. F. is the consideration of the proposed revision of the constitution and by-laws.

H. B. TILSON, Chairman Ex. Committee.
JOHN I. HART, Sec'y Ex. Committee.

LEWIS AND CLARK DENTAL CONGRESS.

The meeting of the Lewis and Clark Dental Congress, to be held in Portland, Oregon, July 17, 18, 19 and 20, 1905, promises to be the largest ever held on the Pacific coast.

The Committee on Clinics asks for voluntary clinics or table demonstrations from members of the profession and suggests that notice of the same be sent the committee as soon as possible.

In order that the program be complete, names of clinicians and clinics must reach the chairman not later than June 15th.

G. H. NOTTAGE, Chmn. Com. on Clinics,
Oregonian Bldg., Portland, Oregon.

F. I. SHAW, Seattle, Wash.

B. S. SCOTT, Tacoma, Wash.

A. STARK OLIVER, Spokane, Wash.

C. E. POST, San Francisco, Cal.

CLAUD W. GATES, Salt Lake City, Utah.

J. H. HOLMES, New Westminster, B. C.

A. W. CATE, Boise, Idaho.

W. H. BARTH, Great Falls, Montana.

THE IOWA STATE BOARD.

The Iowa State Board of Dental Examiners will hold its first examination for 1905 at Des Moines in the capitol building, May 2d and 3d, beginning at 9 a. m.

The second meeting for examination will be held at Iowa City June 15th and 16th. All those expecting to take the examination should file their application two weeks previous to the examination.

E. D. BROWER, Sec'y,
Le Mars, Iowa.

SOUTH DAKOTA STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the South Dakota State Board of Dental Examiners will be held at Mitchell, S. D., July 11, beginning at 1:30 p. m. All candidates will be required to do practical work in both operative and prosthetic dentistry and should bring all instruments and materials necessary to do the same. Vulcanizer, lathe, and swaging appliances will be furnished by the board. Application, together with fee of \$10.00 must positively be in the hands of the secretary before July 7th. Yours sincerely,

G. W. COLLINS.

WISCONSIN STATE BOARD OF DENTAL EXAMINERS.

The next meeting of the Wisconsin State Board of Dental Examiners for examination of candidates for license to practice dentistry in Wisconsin will be held in Milwaukee, June 26, 1905, at the Wisconsin College of Physicians and Surgeons, corner of 4th St. and Reservoir Ave.

Application must be made to the secretary fifteen days before examination. The candidate must be a graduate of a reputable dental college, or have been engaged in the reputable practice of dentistry consecutively for four years, or an apprentice to a dentist engaged in the reputable practice of dentistry, for five years. For further particulars apply to

J. J. WRIGHT, Secretary,
1218 Wells Bldg., Milwaukee, Wis.

NEW JERSEY STATE DENTAL SOCIETY.

The thirty-fifth annual meeting of the New Jersey State Dental Society will be held in the Auditorium, Asbury Park, N. J., commencing July 19th, and continuing until July 22d. Headquarters at Hotel Columbia; rates per one person in room, \$3.50; two persons in room, \$3.00. Meeting will commence promptly at 10 a. m. on the 19th. The various committees have been successful in securing eminent practitioners for papers of present interest. Some fifty clin-

icians in the most modern up-to-date dentistry and the space in the large Auditorium most entirely filled with all the newest appliances to practice dentistry. Friday evening will be devoted to the social side with a smoker, including a collation and entertainment to the guests, exhibitors and members. Cut out now the week of July 17th and meet with us. Seven hundred and fifty-six dentists registered last July; make it a thousand this year.

CHARLES A. MEEKER, Sec'y.

THE NORTHERN OHIO DENTAL ASSOCIATION

The 46th Annual Meeting of the Northern Ohio Dental Association will be held June 6, 7 and 8, at Gray's Armory, Cleveland, Ohio.

This is not only one of the oldest, but is one of the very best attended meetings in the country. This year, the program is one of unusual strength and interest. The leading subjects for consideration are:

1. Humanitarian Methods.
2. Mistakes.
3. Prophylaxis.

Under the first is considered High Pressure Anaesthesia by Dr. C. G. Myers, of Cleveland, Ohio; and High Pressure Anaesthesia as Compared with Other Pain Preventing Methods, by Dr. D. H. Zeigler, of Cleveland.

Essays under the second group include the Mistakes of the Country Dentists, by Dr. R. D. Wallace, Scio, Ohio; Mistakes of the City Dentists, by Dr. F. J. Spargur, Cleveland, Ohio; and Mistakes in Ethics, by Prof. S. H. Guilford, of Philadelphia, Pa.

The third includes the Essays: Two Sources of Tooth Life and Their Relative Importance, by Dr. D. D. Smith, of Philadelphia, Pa.; and Diseases of the Peridental Membrane and Treatment, by Dr. J. V. Stahl, of Wooster, Ohio.

The Essayists and those who open discussion upon the various papers, have been selected for their particular fitness to handle subjects assigned to them.

Under Mistakes in Ethics, Dr. Guilford will point out, as only he can, some mistakes that are being made by the profession in the relation of its members to each other, together with the mistakes made in treatment of patients and the public. Great good is expected to result from the presentation of this paper and the discussions that follow. Many false impressions have existed in the past and still exist as to the duties we owe to each other, our patients and the public, and it is expected that the three papers on mistakes will do much to correct this.

Dr. Smith's paper bears upon that all-important subject, prophylaxis; he will bring a patient with him showing results accom-

plished by his method of procedure. He will illuminate his paper with models and instruments.

Throughout the entire program much attention will be given to the study of Humanitarian Methods. (Methods which make it possible to perform dental operations free from pain.)

The two papers, Application of High Pressure Anaesthesia and High Pressure Anaesthesia as compared with Other Pain Preventing Methods, and the discussions to follow will set forth all that is known of importance in this connection.

There will be about 50 Clinics selected and arranged to give the knowledge seeking dentists the best post-graduate course that can possibly be obtained in a three days' meeting. One session will be devoted to the study of manufacturers' exhibits. The exhibits this year are to be one of the interesting features of the meeting, and the Committee has been promised one of the largest exhibits shown in the country.

All communications pertaining to Clinics or exhibits should be addressed to the Corresponding Secretary, Dr. W. G. Ebersole, 800 Schofield Building, Cleveland, Ohio.

Special rate of a fare and a third have been granted on the certificate plan by the Central Passenger Association.

The Committee extend a most cordial invitation to the members of the profession to attend.

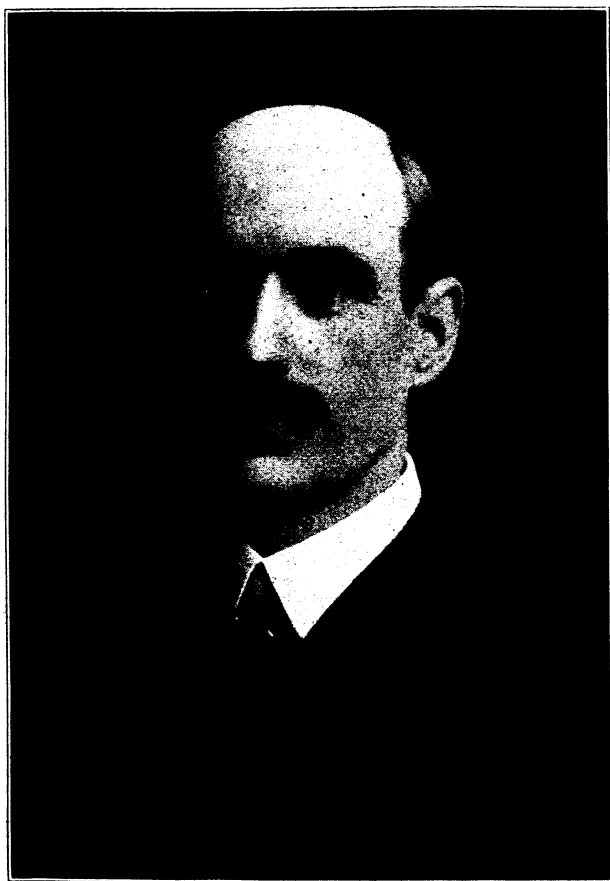
(Signed)

W. G. EBERSOLE,
GEO. H. WILSON,
VARNEY E. BARNES.
Executive Committee.

DR. L. P. HASKELL.

At the February meeting of the Odontological Society of Chicago Dr. L. P. Haskell was the guest of honor. Other guests present were Drs. Edmund Noyes, I. A. Freeman and C. P. Pruyn. The early part of the evening was delightfully spent in toasts and responses from the guests, after which the regular paper of the society was read and discussed. Dr. Haskell is one of the oldest and one of the most active practitioners in Chicago, and well merits the distinctions that are constantly conferred upon him.—*Review*.

NECROLOGICAL



DR. JAMES WOODS SLONAKER.

DR. JAMES WOODS SLONAKER.

Dr. James Woods Slonaker, whose offices were in the Reliance Building, Chicago, died suddenly March 22 in Denver from heart failure, brought about by a violent form of diabetes. With his wife the dentist went to Denver and at that time his condition was not considered serious.

Dr. Slonaker's practice was confined to extracting. Dentists all over the city sent their difficult cases to him and many of the downtown practitioners sent all cases of extracting to him.

Many devices for the scientific extracting of teeth were invented by the dentist. At the congress of dentists at St. Louis he took a prominent part, and he was a frequent contributor to dental and surgical magazines.

Dr. Slonaker lived in Chicago seventeen years. He was born in Jersey Shore, Pa., forty-six years ago, and was graduated from the Philadelphia College of Dentistry. Lately he had resided at the Metropole Hotel.

DR. C. J. REYNOLDS.

Dr. C. J. Reynolds, who settled in Dixon, Ill., as early as 1852, and became in after years one of the leading dentists in Northern Illinois, died recently at Colorado Springs, Colo.

DR. RALPH G. PALMER.

Ralph G. Palmer, formerly a dentist at Pipestone, Minn., and later at Minneapolis, died at the later place March 8th, death resulting from an attack of meningitis. His home was at LeRoy, Minn.

DR. HENRY FOWLE.

Dr. Henry Fowle, age 75, a resident of Milwaukee county for seventy years, is dead at his home at South Milwaukee, Wis. Dr. Fowle practiced dentistry for forty years, retiring seven years ago. He is survived by three sons, a daughter and a brother.

MR. WM. HAHN.

Mr. Wm. Hahn, who for a number of years has been a manufacturer of dental instruments, died recently of consumption. He was located at 220 Washington street, Chicago, for twelve years. Deceased was 45 years of age and was an expert in his line. He leaves a widow and three children.

DR. J. E. BARRICKLOW.

Dr. J. E. Barricklow, age 48 years, of the firm of Barricklow & Dobell, at Columbus, O., died very suddenly March 31, after an illness of only one day. He had suffered similar attacks. Barricklow moved from Flushing, O., in 1893, and rapidly built up a lucrative business. He was born in Cadiz, was educated in Philadelphia and Cincinnati, and for some years was a professor in the Cincinnati College of Dentistry.

MISCELLANEOUS

TO EXPEDITE THE TREATMENT OF PUTRESCENT ROOT CANALS

As a source of gratifying results, use a dressing composed of equal parts of alcohol, formalin, and beechwood creosote.—*Dr. Charles E. Slagle, Brief.*

BUSINESS POINTER

Dentists would save themselves from many a wrangle over bills if they would put down on an examining blank the work to be done and the price to be paid for same, and have the patient sign it in agreement before operating.—*Dental Hints.*

TO STERILIZE A HYPODERMIC NEEDLE

Place pure alcohol in the hypodermic needle, then pass needle through an alcoholic flame; the alcohol in needle will burn, causing the needle to become aseptic and dry.—*Dr. A. W. Gruebbel, Concordia, Mo.*

PROTECT YOUR PATIENT'S EYES WHILE OPERATING

A pair of dark eye-glasses are invaluable for this. A number of patients complain of the light being too strong. The glasses will also protect the eyes from flying particles caused by the use of pumice, disks, strips, etc. I have often seen eye-glasses covered with the above mentioned debris.—*Dr. Homer Almon, Review.*

REPAIRING AMALGAM FILLINGS

When it is desired to add to an old amalgam filling, clean the surface with a cross-cut bur, wipe the clean part of the amalgam with a piece of cotton wool moistened with concentrated phosphoric acid and pack on the new amalgam, which will adhere with no trouble; the joint has about eighty per cent. of the strength of the amalgam used.—*Dr. Stanley Read, British Dental Journal.*

TO SOFTEN HARDENED MOLDINE

Break into small pieces, place in an old glass, pour in considerable water, with half a teaspoonful of glycerine, and let stand in a warm place. The water dissolves the lumps and evaporates, leaving the

glycerin thoroughly permeating the moldine. A little kneading or further evaporation finishes the task and makes the material as good as new.—*Dr. P. W. Smith, Digest.*

JUSTICE TO DR. GEORGE H. WATSON.

On the occasion of the suicide of Dr. A. H. Sylvester, of Berlin, Germany, comments were made in the public press regarding the withdrawal of Dr. George H. Watson from Dr. Sylvester's practice, which was calculated to work an injustice on Dr. Watson. Accordingly the following statement which speaks for itself was published in the *German Times* of Berlin:

SOAP YOUR CASTS

I recently noted an item in one of our journals, setting forth a method of keeping plaster from adhering to a vulcanite plate. The author's plan was to burnish tin foil on the model and then soap the foil. A more perfect fit can be secured by not using the foil. Secure good, hard casts and then soap them. The plate will not show the gloss and will fit perfectly—*Digest.*

ARSENICAL DRESSINGS

When an arsenical dressing is removed the cavity should be flooded with dialyzed iron and the pulp chamber opened up. Then without any attempt to remove anything, seal tannic acid in some form in the cavity for the purpose of constricting and toughening the tissue. When it is essential to avoid discoloration of the tooth the tannic acid should not be used, and all traces of the iron should be removed with alcohol.—*J. P. Buckley, Review.*

PULP REMOVAL IN THE TREATMENT OF PYORRHOAE

In pulp removal in so-called sound teeth, as a measure of treatment in pyorrhoeal mouths, three obstacles to success may be encountered. First, there is a great probability of pulp-calcification; second, hemorrhage is common sequence; and third and most important, the socket being already in an infected condition, apical abscess is not improbable sequence.—*Dr. R. Ottolengui, Cosmos.*

A CURIOUS IDEA

A dentist with a large and fashionable practice in West London has in his waiting-room a curious emblem of his profession in the form of a picture-frame formed of teeth. There are upwards of

500 of them in all, each one of which is numbered, and a history of it carefully kept. Among the number are several taken from the heads of celebrities. Appropriately enough, this gruesome curio contains a portrait of the extractor.—*The Dental Surgeon.*

OIL OF CASSIA

When a potent antiseptic is required, one that is diffusible and will penetrate without coagulation, oil of cassia is indicated. In case of chronic abscess, where the cellular activity of the entire fistulous tract is dormant, cassia forced through the tract will hasten the activity of the tissues to return to normal condition; also in the same conditions when treating pyorrhoea.—*Dr. J. R. Shannon, Digest.*

TO KEEP A GINGIVAL MARGIN CAVITY DRY WITHOUT RUBBER DAM

Prepare the cavity and place a napkin in position. Saturate a little floss silk, or small, loosely twisted thread of absorbent cotton, with thin cement. Dry the cavity and pack the silk or cotton around under the gum margin. This method is often useful where the rubber and clamp is in position and the rubber is stretched and does not pass under the gum margin at the sides of the clamp.—*Dr. R. E. Sparks, Review.*

TUBE AND SPLIT-PIN ANCHORAGE FOR CENTRALS OR LATERALS

When one of the centrals is missing, a tube is placed in the remaining central, and the hooked spur in a gold filling in the lateral, just at the basilar ridge. When a central and a lateral are lost, a tube is put in the cuspid and the spur in a filling in the remaining central. It also forms an excellent support where the first bicuspid and latter incisor are gone, the cuspid being tubed and spurs from the dummies resting in the central incisor and second bicuspid.—*Fred A. Peeso, Item.*

FOR CLEANING THE TEETH

The addition of a small portion of Euthymol Tooth Paste to pumice stone for cleansing teeth at the dental chair offers a valuable adjunct to treatment.

It imparts an agreeable flavor, is cooling and stimulating to the mucous membrane, prevents the pumice stone from being thrown about, and is gratefully received by the patient.—*Goodman A. Miller, D. D. S., Chicago, Ills.*

FINISHING RUBBER DENTURES

In finishing rubber denture with felt cones and wheels use a piece of pink base plate wax applied to the revolving felt till its surface is coated, and it will hold the pumice much longer, cut faster, and leave the surface much smoother than if used without the wax. It is more cleanly to apply the soap, and does the work better, and the dust caused by the final polishing with the brush wheels is not irritating to the nose and throat as it is if soap is used.—*R. L. Spaulding.*

GASTRALGIA

Gastralgia is one of the most painful conditions of the stomach with which we have to deal, it being almost next to impossible to relieve the paroxysms of excruciating pains. I have found the following prescription of great value in this trouble, it giving almost immediate relief, even in those cases where everything else had failed:

℞ Ol. Caryophyllus, 2 drachms.

Tr. Opii. Camph., 2 ounces.

Spts. Vini Gallici. q. s. ad. 2 ounces.

M. Ft. Sig: One drachm in hot water every two or three hours until relieved.

—*Edwin A. Weimer, M. D., Medical Brief.*

PRESSURE ANAESTHESIA IN THE REMOVAL OF PULPS

It is very hard to tell where to use this method and where not. To make a general statement, it is indicated where the pulp can be removed entirely by mechanical means, and contraindicated where this cannot be done. I would say that, in proportion as the pulps of teeth are difficult to remove, pressure anaesthesia is contraindicated. It follows, then, that the centrals, laterals, canines, second bicuspid and frequently the first bicuspid and first molars are best when suited for this method, while the second and third molars, and occasionally the first bicuspid and first molars can be more successfully treated by devitalizing.—*Dr. R. A. Adams, Dental Summary.*

BACTERIA THE CAUSE OF CARIES

We think it has been demonstrated to a finality that dental caries is conditioned upon bacterial activity, and that the dissolution of tooth-structure is in the first place brought about by acids, which agents alone have the power to dissolve the calcium phosphate of tooth-structure. It has also been demonstrated that the bacteria

concerned in the production of dental caries generate lactic acid as a result of their fermentative action upon the carbohydrates, and that the lactic acid so produced dissolves the calcium phosphate of the tooth. It has not, however, been shown that mucin may not be a factor in the process. Lohmann's claim that mucin is capable of directly producing caries, if such be his position, cannot be taken seriously in view of what is already known of the carious process.—*Dr. Edw. C. Kirk, ex-Editorial, Cosmos.*

FINISHING GOLD FILLINGS

Many a young man has wondered why his filling did not finish up like that of some excellent operator whose work he has admired. Tell him that it is not that his ideal operator is so much more skillful than he, but because he got tired out too soon, and failed to appreciate that all that was needed to make his filling finish perfectly was two or three large pieces of gold, covering the whole surface of the filling like a blanket, carefully laid on with a broad, flat, almost smooth-faced plugger; this to be followed by a very small point with which the surface is condensed. Tell him also, for his encouragement, that his ideal operator has not skill enough to put a perfect filling in the cavity where he failed yesterday, with no more room than he had. It is not that his ideal is so much more expert as a mechanic; it is that he knows to fill the cavity perfectly he must have room, and without it he will not attempt the task.—*Dr. F. Milton Smith, International.*

HOME MANUFACTURE OF FORMALDEHYD GAS FOR INSTRUMENT STERILIZATION

Formaldehyd is produced by oxidation of methyl alcohol. Lamps for burning the wood alcohol depend upon platinized asbestos as the agent which when incandescent produces the oxidizing process, breaking up the wood alcohol into formic aldehyde. This asbestos has not proved lasting in the lamps which I have used, being liable to fail just when most needed. A small piece of sponge platinum held above the wick of any ordinary alcohol lamp by some simple contrivance works admirably, placing the lamp in any suitable enclosure, as an oven of tin or copper or a chafing dish, cutting a hole in the bottom large enough for the burner to extend inside. Light the wick and heat the platinum to incandescence, then extinguish the flame and the metal will retain a dull glow and produce formaldehyd as long as there is alcohol in the lamp, the amount depending on the area of platinum and the size of the wick.—*Dr. H. L. Wheeler, International.*

PATENTS

781,617. Dental-Disk Carrier. Otto B. Price, Moncton, Canada. Filed Aug. 20, 1904. Serial No. 221,474. See Fig. 1.

Claim.—1. In a dental-disk carrier the combination of a screw-threaded dental mandrel with curvilinear splits, a screw-threaded dental-disk carrier, and a clamping means for bringing said split mandrel into frictional contact with said disk-carrier.

2. A dental-disk carrier comprising a screw and clamping means therefor, said means being split spirally, and a clamping-collar upon the exterior of the latter for embracing the same at will, substantially as described.

3. A dental-disk carrier consisting of a screw, gripping means embracing the latter, said means divided by a split spirally extending along an axis and a clamping-collar longitudinally movable upon the exterior of the latter for embracing and reducing the same into frictional contact with said screw, substantially as described.

785,018. Dental Forceps. Ira P. Norton, Laporte, Ind. Filed Sept. 3, 1904. Serial No. 223,271. See Fig. 2.

Claim.—1. A pair of forceps having a lancet combined with the outer side of one of its jaws.

2. A pair of forceps having a detachable lancet combined with the outer side of one of its jaws.

3. A pair of forceps having the outer side of each of its jaws provided with a longitudinal groove, and lancets removably mounted within the grooves.

782,627. Dental Plate. Herbert J. Tarr, Jr., Chicago, Ill. Filed Apr. 27, 1904. Serial No. 205,065. See Fig. 3.

Claim.—1. A dental plate having an open space therein and a removable diaphragm temporarily secured in the space and forming a suction chamber, substantially as described.

2. A dental plate composed of hard material and provided with a removable suction chamber formed by a yielding diaphragm hermetically sealed in an opening in said dental plate.

3. The combination with a hard rubber dental plate having an opening therein, a grooved ring sealed in the plate in the periphery of the opening, and a soft rubber diaphragm covering said opening and means to fix it in said hollow ring, substantially as described.

4. The combination with a dental plate having a circumferential channeled ring around the opening therein and anchored in the material of the plate, a suction diaphragm having its edges doubled and placed in the channel of the annular ring, and a holder ring sprung into place in the said annular ring to anchor the edges of the diaphragm, substantially as described.

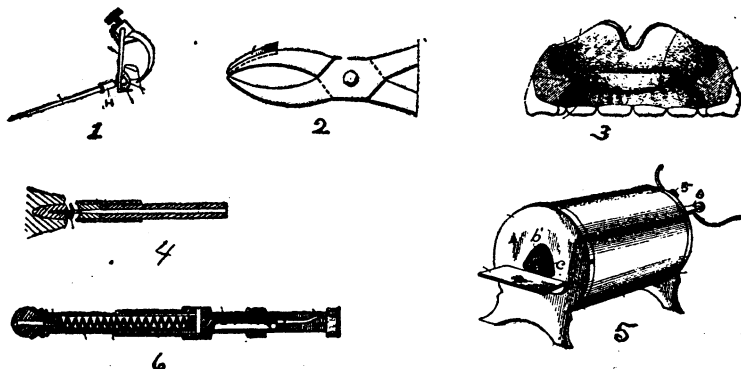
783,327. Dental Root-Impression and Swaging Instrument. Adelbert W. [unclear], Iowa City, Iowa. Filed May 19, 1904. Serial No. 208,752. See Fig. 1.

Claim.—1. A root-impression and swaging instrument, comprising a ferrule, the edge of which is fashioned to approximate the shape or contour of a gum and adapted to receive impression material, of a piston movable in said ferrule and adapted to force the impression material contained therein into contact with the surface of which it is desired to take an impression.

2. A root-impression and swaging instrument, comprising a ferrule, the end of which is fashioned to conform to the contour or shape of a gum, a piston arranged to be moved within said ferrule for the purpose described, and provided with a bore, and a guide-pin movably arranged in said bore and removable therefrom.

3. In a root-impression and swaging instrument, a ferrule having its end fashioned to conform to the shape or contour of a gum, and a piston, said ferrule being adjustably and removably arranged upon said piston and said piston adapted to be moved in said ferrule, for the purpose described.

4. A root-impression and swaging instrument, comprising a ferrule having its end fashioned to approximate the shape or conformation of a gum, a piston provided with a bore, said ferrule being adjustably and removably arranged upon said piston, said piston adapted to be moved in said ferrule for the purpose set forth, and a guide-pin adjustably and removably arranged in the bore of the piston.



784,098. Dental Root-Extractor. Walter S. Beazley, Lancaster, Ky. Filed June 18, 1904. Serial No. 213,169. See Fig. 6.

Claim.—1. A dental instrument of the kind described comprising an inner and outer tube, both provided with handles, the inner tube having a bearing-support at its lower end, the outer tube carrying a bar terminating in a hook at the lower end, said hook being adapted to engage a screw-eye, and means for returning the said parts to their normal positions.

2. A dental instrument of the kind described comprising an inner tube having a handle at its upper end and supporting-legs at its lower ends, said legs being provided with cushioned feet, an outer tube provided also with handles and having a bar connected thereto, said bar sliding within the inner tube and carrying a rod which terminates in a hook, said hook being adapted to engage a screw-eye, and the spring for returning said parts to their normal positions.

3. A dental instrument of the kind described comprising an inner tube having a handle at the upper end and the legs at the lower end, said legs being provided with cushioned feet, an outer tube provided with laterally-projecting handles, a bar movable in the inner tube and connected to the outer tube by means of a bolt, said bolt working in the longitudinal slots produced in the inner tube, a spring arranged within the inner tube and adapted to bear upon the upper end of said bar, a rod carried by the bar and terminating in a hook at its lower ends and a screw-eye adapted to be engaged by said hook for the purpose specified.

781,762. Electrical Dental Furnace. Luther L. Bosworth, Cleveland, Ohio. Filed March 5, 1904. Serial No. 196,767. See Fig. 5.

Claim.—1. In electrical dental furnaces, a two-part separable muffle having one part telescoped within the other and a heating-coil covered in between said parts, substantially as described.

2. In electrical dental furnaces, a tapered muffle consisting of two sections telescopically and separably united and a heating-wire wound about the inner section and covered by the outer section, substantially as described.

3. An electrical dental furnace, comprising a muffle of tapered form, smallest at its closed inner end and consisting of an electrically-wound inner section and an unwound outer section fitting closely upon the inner section, said inner section having the winding removable therewith and exposed on the surface thereof for repairs, substantially as described.

4. In electrical dental furnaces, a sectional muffle consisting of a plain outer section and an electrically-wound inner section nested within the outer section, and a non-conducting body having a cavity containing said muffle, substantially as described.

5. In dental furnaces, a body of a non-conducting material having a cavity in its end and a resistance-coil about said body, in combination with a separable two-part muffle occupying said cavity and an electrical winding about the inner part of the muffle connected with the said resistance-coil, substantially as described.

6. A dental furnace comprising a suitable casing, a body of non-conducting material therein having a cavity in one end and a resistance-wire wound about said body, in combination with a sectional muffle fitting said cavity, the outer section thereof being plain and the inner section wired about its outside and connected up with said resistance-coil, and conductors for the electric current extending to the opposite end of said body, substantially as described.

7. In electrical furnaces, a suitable casing and a non-conducting body therein and insulated therefrom, a resistance-coil about said body and conductors for the current extending through the same from end to end, in combination with a muffle consisting of telescopically-united sections inclosed in a cavity in said body and a heating-wire between said sections having one end connected with one of the terminals of the said resistance-coil and the other end with one of said conductors, the inner end of said wire extending through the wall of the outer muffle-section, substantially as described.

Personal and General

Gardner-Fleming—Doctor Forrest L. Gardner and Miss Emma Fleming, both of Cornell, were married at Streator, Ill., Feb. 18th.

Tooth Extraction Fatal—Wilbur D. McClure, aged 52, a Wooster, Ohio, business man, died Feb. 13th from hemorrhages following the extracting of several teeth.

Dentist Shoots Promiscuously—William LaBelle, a Holyoke, Mass., dentist, shot his wife, her grandmother and his wife's mother at West Springfield, Feb. 14.

New Dental College—State Dental College of Dallas; capital stock, \$3,000; purpose, teaching the theory and practice of dentistry. Incorporators, F. B. King of Houston, Leonard Isaacs of Rockdale, Harry Tom King of Abilene, and David E. Moore and Thomas J. Bradford of Dallas.

Snow-Graham—Dr. Ed. Snow, of East Tawas, Mich., was married Feb. 27th to Miss Alice Graham at her home in Charlotte, Mich. The young couple started immediately on a short tour. Dr. Snow has decided to change his location, and the young couple will go to Dakota soon to make their home.

Unusual Case—Two teeth far up in the cheek bone, directly beneath the eye, were discovered in a subject at the Iowa University dental clinic by Dr. G. I. V. Brown of Milwaukee, in attendance at the annual meeting of the Alumni Association, by the aid of X-rays. The operation was performed before the 200 Iowa dentists who were present. The teeth were removed.

Detroit Dental Society—Clinic day and the annual banquet of the Detroit Dental Society was held recently. The afternoon was devoted to a practical surgical clinic at St. Mary's hospital. Among the dentists giving demonstrations were Dr. F. Roach, Dr. Robert Good of Chicago; Dr. C. H. Worboys, Albion; Dr. L. P. Hall and Dr. E. T. Loeffler of Ann Arbor.

Psi Omega at St. Louis—The local chapter of the Psi Omega dental fraternity of the Marion-Sims dental college entertained the honorary members Feb. 28. The physical degree was given several candidates and the work was followed by a banquet. Toasts were responded to by Drs. E. Bergstresser, J. F. Austin, C. G. Hawley, H. J. Braun, W. F. Courtney and C. B. Winner. Grandmaster G. B. Strange was toastmaster.

Tetanus from Tooth Paste—Martha Helms, 10 years old, after suffering intensely from tetanus, is dead at a Harlem hospital, New York. The surgeons assert that the fatal lockjaw could be traced directly to some "tooth-ache paste," which the child used. They assert that the paste contained creosote, which inflamed the girl's gums, and, being absorbed, so excited her sensitive nervous organization that tetanus resulted.

Better Than the Others?—Graduates of dental colleges in Minneapolis will not be required to take the regular examinations of the state board of dental examiners, before practicing dentistry in the state, if a bill introduced by Senator George P. Wilson of Minneapolis becomes a law. The measure exempts the graduates on condition that they pay \$10 fee, the same as other applicants. The bill was referred to the judiciary committee.

A Good Law—Representative Moore of Fremont County, Idaho, on Feb. 7 presented, by request, a bill amending certain sections of the present law regulating the issuance of dental certificates by the state dental board. The most important change from the present law is a provision authorizing the board to grant certificates, if desired, on the presentation of certificates from other states or diplomas from colleges. Another section provides that if any "company" or "association" shall engage in the dental business, it shall post at the entrance to its office a full list of all the employees who do dental work.

District Dental Society Formed—The representative dentists of Bond, Christian, Shelby, Fayette and Montgomery counties met Feb. 28th in the parlors of the Hotel St. James at Pana, Ill., to organize an association for advancement. They effected a permanent organization and decided to meet semi-annually, the next meeting to be held in Taylorville on the third Tuesday in September, 1905. The following officers were elected: President, Dr. Hoover, Shelbyville; vice-president, Dr. Bonbrake, Taylorville; secretary, Dr. Roberts, Hillsboro; treasurer, Dr. West, Parnin; librarian, Dr. Gilbert, Pana.

The Army Dentist—Dental Surgeon Charles J. Long, United States army, who reported for duty at Fort Snelling recently, has been ordered by Gen. Carr to proceed, with a hospital corps attendant, to the several posts in the department of Dakota, for the performance of needed dental work on the officers and enlisted men stationed thereat. It will require five months to go the rounds, the stays at the various posts being as follows: Fort Assiniboine, Mont., 42 days; Fort Harrison, Mont., 28 days; Fort Missoula, Mont., 21 days; Fort Keogh, Mont., 28 days; Fort Lincoln, N. D., 14 days, and Fort Yellowstone, Wyo., 14 days. Surgeon Long will start this evening on his trip.

Dentist Bests Footpad—Dr. G. S. Stephenson, of Elwood, Ind., who has been in charge of the business of the Elwood Coal and Fuel Company, was the victim of a footpad on the night of March 4th, but fortunately escaped with his money. Stephenson closed up the place after balancing his books, and, with \$190 in his pocket, started for home. He had gone a few feet when he heard steps behind him and turned to receive a blow on the forehead with a pair of knuckles. He grappled with his assailant and the men rolled in the mud. Stephenson got the best of the encounter, and the footpad, gaining his feet, ran. It is supposed the fellow was some person who saw him counting the money before closing the office, but there is no clew.

Died from Gas—Mrs. Rebecca Kalish died in the office of Henry Steinberg, a dentist in New York city, from effects of nitrous oxide gas March 19th,

Fined for Illegal Practice.—H. P. Collier was arrested in Belleville March 28 on a warrant sworn out by Dr. J. K. Conroy, president of the Illinois District Dental Association, charging him with practicing dentistry without a state certificate and without being registered. He was fined \$25 and costs on two charges. William H. Hargis of St. Louis, who arrived in Belleville March 29, was arrested on similar warrants issued at the instance of Dr. Conroy.

Dr. B. R. Kidd of East St. Louis was also arrested and taken to Belleville on a warrant charging him with practicing dentistry illegally. He was also fined \$25 and costs. All three of the accused made arrangements to pay their fines.

Bankrupt.—Auguste Charles Valadier, a dentist of No. 252 West 42d street, New York, has filed a petition in bankruptcy, with liabilities of \$3,496 and no assets. He owes \$1,710 for advertising and \$110 for telephone. Anna Bell Smith of Rochester is a creditor for \$787 on a judgment for injuries.

Swallows Plate, Dies.—A set of false teeth swallowed by John Hope, an aged farmer, caused his death within half an hour. Hope was laughing at the antics of a young colt, when he suddenly gulped down his upper set of false teeth. He was immediately attacked with terrible pains in the stomach, from which he suffered until his death.

How Would Oslerizing Do?—At the meeting of the Wigan board of guardians at Aurora, Ill., a lady guardian entered a protest against the board expending the sum of \$25 in supplying a woman 76 years of age with false teeth. She said she was not bothering about the price of the teeth, but about the rate-payers having to expend that sum of money in providing false teeth for a woman aged 76.

Gold Teeth for Lion.—While big Bob Fitzsimmons, ex-champion heavy-weight pugilist of the world, held his pet lion, a dentist capped two enormous gold crowns over the lion's cuspids in the lower jaw, the operation taking place in the dentist's offices. Despite the use of chloroform, the beast roared with anger as the doctor fussed in his mouth. Besides the husky prize-fighter, a half-dozen stalwart men assisted in holding the big brute while the teeth were being fitted. Once the animal broke the hold of his captors and threatened to clear out the office, until he was grasped in the strong arms of his owner, who succeeded in taking him down.

Thieves.—Dr. J. H. Teeter, at Oskaloosa, Iowa, lost a quantity of gold through burglars March 24th. Drs. Bingham and Branstad, at Eau Claire, Wis., lost a large quantity of gold through thieves March 13th, and Dr. Bailey, at Chippewa Falls, suffered similar losses about the same time.

Severe Bleeding Follows Extraction.—W. L. Ferris, president of the Chicago Creamery Package Company's plant in Portland, Ind., and one of Portland's most prominent citizens, lies in an alarming condition at his home. For thirteen hours the dentist and a physician labored to stop a flow of blood which followed the pulling of a tooth.

Wonderful Command of Language.—In the days when dentistry was not the science it is now, the pounding of a hickory plug into the space

between the teeth taking the place of modern bridge-work, the elder Judge Peckham, who was noted for his picturesque flow of profanity, visited a dentist. The work had hardly started when the judge began to swear. When the tapping of the hickory plug increased in force, his language became torrid, and when, in time, the dentist gave the final blows, the patient arose from the chair and fairly shattered the atmosphere with a weird, terrible torrent of profanity. As the judge passed out, the dentist remarked to a waiting patient: "Wasn't it beautiful? It wasn't really necessary to pound half so long, but I did so enjoy his inflection that I almost pounded the hickory plug into splinters. Wonderful command of language the judge has!"

Canine Dentistry—A New York dentist was operating on the tooth of a high-priced dog. The dog resented the treatment. He may have been led—they usually lead him—to believe that he was going to a shop where they operate without pain. The dentist was trying to fill one of the dog's teeth. The dog took the job off the dentist's hands by trying to fill his own teeth—with choice sections of the dentist. Deceived, perhaps, as to the exact nature of his visit to the shop, he gave the dentist several excellent impressions of both his upper and lower jaws. The dentist, however, disapproved of this usurpation of his prerogatives and made some remarks in such a high key that the passers-by heard the outcry and rushed in to see what was the trouble. They finally pried the dog and the dentist apart, and when the latter said he could do nothing further for the dog at that time, the dog showed all his teeth with an inviting smile, but the dentist was inexorable. The dog was then drawn out by the collar, but seemed to want to get back and say something more to the dentist. The latter, however, was very busy investigating the spots where the dog had left his dental impressions and saying things to himself that were much more forcible than polite.

REMOVALS.

Dr. D. C. Brett, from Perry Iowa, to Adel, Iowa. Dr. E. S. Snyder from Keosauqua, Iowa, to Burlington, Iowa. Dr. Shaw from Rossville, Ind., to Delphi, Ind. Dr. C. C. Countryman from Eureka, Colo., to Keosauqua, Iowa. Dr. F. W. Shores from Saginaw, Mich., to Oakland, Cal. Dr. Dawson from Clinton, Iowa, to Pontiac, Ill. Dr. Thomas Hammond from Fresno, Cal., to Guadalajara, Mexico. Dr. John G. Ohlwein from New Boston, Ill., to Plano, Ill. Dr. O. N. Williams from Illiopolis, Ill., to Manzanola, Colo. Dr. Barnum from Springfield, Ill., to Illiopolis, Ill. Dr. F. G. Wolcott from Pueblo, Colo., to Janesville, Wis. Dr. G. E. Glaze from Portland, Ore., to Douglas, Wyo. Dr. Martin F. Shannon from Douglas, Wyo., to Cheyenne, Wyo. Dr. C. E. Hanson from Waverly, Iowa, to Davenport, Iowa. Dr. J. Truman Clark from Chicago, Ill., to Ottawa, Ill. Dr. N. Matzen from Tilden, Neb., to Norfolk, Neb. Dr. C. W. Harned from Solon, Iowa, to Iowa City, Iowa. Dr. A. E. Hemphill from Hedrick, Iowa, to Fremont, Iowa. Dr. W. H. Pittwood from Pullman, Wash., to Seattle, Wash. Dr. B. L. Kirby from Pleasant Plains, Ill., to Springfield, Ill. Dr. Duerre from Mazeppa, Minn., to Zum-

brota. Dr. W. H. Lockhart from Traverse City, Mich., to Coldwater, Mich. Dr. L. C. Singleton from Stanford, Ky., to Bowling Green, Ky. Dr. C. A. Isham from Zumbrota, Minn., to Minneapolis, Minn. Dr. C. H. Woolgar from Mt. Vernon, Ohio, to Larue, Ohio. Dr. Chas. W. Bruner from Toledo, Iowa, to Waterloo, Iowa. Dr. W. J. Gray from Paxton, Ill., to Roberts, Ill. Dr. C. M. Sherrill from Chicago, Ill., to Clinton, Ill. Dr. G. C. Mooney from Manson, Iowa, to Ft. Dodge, Iowa.

WANTED

Wanted, to buy a practice (no outfit,) in a town where there is only one dentist, or in a large town where the seller would introduce the buyer. Address N 2, care of American Dental Journal.

WANTED

Sanitol chemical stock. Address R. O'Sullivan, 43 Exchange Place, New York, N. Y.

WANTED

Practice and furniture in good Illinois town of 20,000. Cash income last year over \$3,000. Address S. D., American Dental Journal.

WANTED

One-half interest in established advertising Dental Parlor, in city of 20,000. Must not be afraid of work. Address T, American Dental Journal.

FOR SALE.

Practice in Michigan town of 30,000, doing \$400 monthly. Will sell for cost of equipment if taken before June 15th. Address S 4 American Dental Journal.

FOR SALE

\$4,000 cash practice in Milwaukee, Wis., included, to dentist buying office outfit; complete in every respect. M 4, American Dental Journal.

FOR SALE

An up-to-date dental office at invoice in county seat town of 5,000 near largest summer resort in northern Indiana. Rent, \$10.00 for office and living rooms. \$450 cash or \$500 long time. Address B-3, Am. Dental Journal.

FOR SALE

Will sell my \$3,000 practice, including Columbia chair, vulcanizer and reception room furniture.

Western Michigan town of 10,000 inhabitants and rapidly growing. Bargain.

Address "Bargain," care of Frink & Young.

